# A STUDY ON
# SANTHUVATHAM
## *(Polyarthritis)*

***Dissertation Submitted To***

**THE TAMIL NADU Dr. M.G.R. Medical University**

**Chennai – 32**

*For the Partial fulfillment for the Award of Degree of*

**DOCTOR OF MEDICINE (SIDDHA)**

**(Branch – III, SIRAPPU MARUTHUVAM)**


**DEPARTMENT OF SIRAPPU MARUTHUVAM**

**Government Siddha Medical College**

**Palayamkottai – 627 002.**

**OCTOBER - 2019**

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# BONAFIDE CERTIFICATE

This is to certify that the dissertation entitled **"A STUDY ON SANTHU VATHAM** is a bonafide work done by **DR. G. NIVETHA, (REG. NO : 321613008) GOVERNMENT SIDDHA MEDICAL COLLEGE, PALAYAMKOTTAI** in partial fulfillment of the University rules and regulations for award of **M.D (SIDDHA), BRANCH - III SIRAPPU MARUTHUVAM** under my guidance and supervision during the academic year **2016-2019 OCTOBER.**

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## DECLARATION BY THE CANDIDATE

I hereby declare that this dissertation entitled **"A STUDY ON SANTHUVATHAM"** is a bonafide and genuine research work carried out by me under the guidance of **Prof. Dr.M. AHAMED MOHAIDEEN., M.D(s).,** HOD, PG - Department of Sirappu Maruthuvam, Govt. Siddha Medical College, Palayamkottai and the dissertation has not formed the basis for the award of any Degree, Diploma, Fellowship or other similar title.

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Review Article

# THERAPEUTIC APPLICATION OF A SIDDHA FORMULATION PATAIC CANKĀRAN – A REVIEW

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**ABSTRACT**

*Padarthamarai* is the fungal skin infections and are categorised under *Kutta Rogam* (*Padarthamarai -Pundareega Kutam*). Many siddha drugs are prescribed for these diseases among them, *Pataic Cankāran* is exclusively mentioned for these disease as an internal and external medicine in Siddha literature - *Siddha Vaidya Thirattu*. Two different preparations are mentioned under *Pataic Cankāran* and differences observed in the ingredients as in *Pataic Cankāran* I *Ankol* (*Alangium salvifolium* (L.f.) Wang.), *Marukkarai* (*Catunaregam spinosa* (Thunb.) Tirvengadumia) and *Elumitchai* (*Citrus aurantifolia* (Christm.) Swingle), where as in *Pataic Cankāran* II, *Thagarai* (*Senna tora* (L.) Roxb.), *Erruku* (*Calotropis procera* (Ait.) R.Br.) are used. Even though *Pataic Cankāran* is mentioned in literature exclusively for dermatophytosis which is no longer in uses; Clinical study and standardisation of this drug have not been done so far, but *In-vitro* anti-dermatophytotic activities of the individual ingredient of these formulations have already been proved. The present review article aimed to document the biological, pharmacological and therapeutic applications such as anti-microbial, anti-bacterial and anti-inflammatory activities of individual ingredients used in *Pataic Cankāran I* with reference to skin diseases. This study will help to understand the need of research study on this ancient Siddha formulation.

**KEYWORDS:** *Pataic Cankāran*, Siddha formulation, Skin diseases, Dermatophytes.

## INTRODUCTION

Siddha, a traditional system of medicine is being followed by the South Indians especially Tamilians and has drawn a great attention world wild. A number of ancient texts of Siddha perceived treasure to cure various ailments. In Siddha, skin diseases are collectively known as *"Thol Noikal"*. *Padai* and *Padarthamarai* (dermatophytoses) are common skin diseases grouped under *"Kutta Rogam"* and probably Dermatophytosis.[1,2] *Padai* - differentiated into *Erichalpada, Thothupadai, Pithapadai, Megapadai, Themalpadai* etc[2,3]. *Padarthamarai* (*Pundareega Kutam*) is another type skin disease caused by Ring worm, *Tinea corporis* and other species of *Tinea*. Symptoms of these diseases are patches, black, white, and red colored skin with watery or dried that spread on the body [2,3]. Siddha drugs prescribed for dermatophytosis/other skin infections are; *Parangipattai Chooranam, Chinathamani Kuligai, Ilaikalli Pattru, Arugantailam, Nantimeluku, Cirrattaittailam, Pataic Cankāran* and *Vekarappodi* [1,2]. Among them, *Pataic Cankāran* is an important drug used for fungal skin infection both *Padai* and *Padarthamarai*. In Siddha literature two types of preparations named under *Pataic Cankāran*, and prescribed exclusively for *Padai* and *Padarthamarai* (dematophytosis). Ingredients of *Pataic Cankāran* I (Table 1). In the review article presented siddha perspective and pharmacological important of *Pataic Cankāran* I and its ingredients in brief with reference to the skin diseases.

## MATERIALS AND METHODS

Literature survey was done using search engines such as pubmed, pubchem, Science direct, and siddha literature. [1,4,5]

## RESULTS AND DISCUSSION

Preparation of *Pataic Cankāran* I mentioned in Siddha Vaidya Thirattu as follows: Finely powdered *Ankol Verpattai, Marukkarai Verpattai* and *Marukkarai Vidhai* were ground with Elumitchai fruit juice till a waxy consistency obtains. Recommended dosage: as external application also can use internal administration with the dose of 0.5-1g oral.[4] Ingredients of *Pataic Cankāran* I are given in Table 1 with botanical name and Tamil name.

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# CME PROGRAMME

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## CERTIFICATE

This Certifies that

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for Participating / ~~Presenting~~ ~~Poster~~ ~~entitled~~"—

....." in the **Pre – Siddha Day Seminar on** "Scope of Clinical Practice in Siddha System of Medicine" organized by Siddha Clinical Research Unit, Palayamkottai, a peripheral unit of Central Council for Research in Siddha(CCRS), Chennai with the support of Ministry of AYUSH held on 19th December 2018 at Govt. Siddha Medical College Auditorium, Palayamkottai.

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## CERTIFICATE OF BOTANICAL AUTHENTICITY

Certified the following plant drugs used in Siddha formulation **SARVANGA VATHA CHOORANAM (INTERNAL) & MUKKUTU YENNAI (EXTERNAL)** for management of **SANTHU VATHAM(POLYARTHRITIS)** taken up for post-graduation Dissertation studies by **Dr.G.NIVETHA (REG.NO:321613008)** PG scholar, Department of Sirappu Maruthuvam are correctly identified and authenticated through Visual inspection / Organoleptic characters / Experience, Education & Training morphology, microscopical and taxonomical methods.

**INGREDIENTS OF SARVANGA VATHA CHOORANAM**

| S.NO | DRUGS | BOTANICAL NAME | FAMILY | PART USED |
|---|---|---|---|---|
| 1. | Mavilingam | *Crataeva religiosa* | Capparidaceae | Bark |
| 2. | Kondrai | *Cassia fistula* | Caesalpiniaceae | Bark |
| 3. | Chitiramoolam | *Plumbago zeylanica* | Plumbaginaceae | Root |
| 4. | Kandakathari | *Solanum xanthocarpum* | Solanaceae | Root |
| 5. | Sangam | *Clerodendrum inermi* | Verbenaceae | Root |
| 6. | Vathamadakki | *Clerodendrum phlomidis* | Verbenaceae | Root |
| 7. | Boothakarapan | *Sterculia foetida* | Sterculiaceae | Bark |
| 8. | Thuthuvalai | *Solanum trilobatum* | Solanaceae | Whole plant |
| 9. | Velarugu | *Enicostema axillare* | Gentianaceae | Root |
| 10. | Kayam | *Ferula asafoetida* | Apiaceae | Gum Resin |
| 11. | Chukku | *Zingiber officinale* | Zingiberaceae | Rhizome |

**INGREDIENTS OF MUKKUTU YENNAI**

| S.No | DRUG | BOTANICAL NAME | FAMILY | PART USED |
|---|---|---|---|---|
| 1. | Kurundhotti | *Sida cordifolia* | Malvaceae | Root |
| 2. | Vembadampattai | *Ventilago maderaspatana* | Rhamnaceae | Bark |

Station:Palayamkottai

Date: 9.4.18

Authorized signature

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## CERTIFICATE OF GUNAPADAM AUTHENTICITY

Certified the following metals & mineral drugs used in siddha formulation **SARVANGA VATHA CHOORANAM (INTERNAL) & MUKKUTU ENNAI (EXTERNAL)** in the treatment of **SANTHUVATHAM (POLYARTHRITIS)** taken up for Post-Graduation dissertation studies by **Dr.G.NIVETHA (REG.NO:321613008)** PG scholar, Department of Sirappu Maruthuvam are correctly identified and authenticated through Visual inspection / Organoleptic characters / Experience, Education & Training morphology methods.

**METALS & MINERAL INGREDIENTS OF**

**SARVANGA VATHA CHOORANAM (INTERNAL)**

| S.NO | TAMIL NAME | ENGLISH NAME | CHEMICAL NAME |
|---|---|---|---|
| 1. | Indhuppu | Rock salt | Rock salt |
| 2. | Valayaluppu | Glass gall | Sandevere |
| 3. | Vediyuppu | Potassium nitrate | Pottassium nitrate |
| 4. | Kalluppu | Himalayan crystal salt | Sochal salt |

**METALS & MINERAL INGREDIENTS OF**

**MUKKUTU ENNAI (EXTERNAL)**

| S.NO | TAMIL NAME | ENGLISH NAME | CHEMICAL NAME |
|---|---|---|---|
| 1. | Porigaram | Borax | Borax |
| 2. | Manjal melugu | Bee wax | Bee wax |

Station: Palayamkottai.

Date: 02.05.18

Authorized signature

Dr. A. KINGSLY MD (S)
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Head of the Department
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# GOVT.SIDDHA MEDICAL COLLEGE AND HOSPITAL

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## SCREENING COMMITTEE

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Department : SIRAPPU MARUTHUVAM (Branch III)

This is to certify that the dissertation topic, An open clinical study to evaluate the efficacy of Siddha polyherbal Medicine **SARVANGA VATHA CHOORANAM** [Internal], **MUKKUTU YENNAI** [External] and **OTRADAM** [External Therapy] for the treatment of **SANTHUVATHAM**[POLYARTHRITIS],has been approved by the screening committee.

| Branch | Department | Name | Signature |
|---|---|---|---|
| I | Pothu Maruthuvam | Prof.Dr.A.Manoharan MD(S) | |
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| III | Sirappu Maruthuvam | Prof.Dr.A.S.Poongodi Kanthimathi MD(S) | |
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| VI | Nanju nool Maruthuvam | Prof.Dr.M.Thiruthani MD(S) For | |

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## CERTIFICATE OF APPROVAL

| | |
|---|---|
| Address of Ethical Committee | Government Siddha Medical College,<br>Palayamkottai-627002,<br>Tirunelveli district. |
| Principal Investigator | Dr.G.Nivetha, PG- First year,<br>Department of Sirappu Maruthuvam,<br>Reg. No: Not yet registered. |
| Guide | **Dr.M.Ahamed Mohideen M.D(s).,**<br>Reader,<br>Department of Sirappu Maruthuvam,<br>Government Siddha Medical College and Hospital,<br>Palayamkottai - 627002, Tirunelveli District.<br>dr.ahmed63@gmail.com |
| Dissertation Topic | An open clinical study to evaluate the efficacy of Siddha Polyherbal Medicine SARVANGA VATHA CHOORANAM[Internal],MUKKUTU YENNAI[External] and OTRADAM[External Therapy] for the treatment of SANTHU VATHAM[Polyarthritis] |
| Documents Filed | (1)Protocol (2)Data Collection Forms (3)Patient Information Sheet (4)Consent Form (5)SAE (Pharmacovigilance) |
| Clinical/Non Clinical Trial Protocol (Others-Specify) | Clinical Trial Protocol |
| Informed Consent Document | Yes |
| Any other Document | Case Sheet/Investigation Documents |
| Date of IEC Approval & its Number | 29.05.2017 , GSMC-IV IEC/2017/Br-III/18/29.05.2017 |

We approve the trial to be conducted in its presented form.

The Institutional Ethical Committee expects to be informed about the process report to be submitted to the IEC at least annually of the study, any SAE occurring in the course of the study, any changes in the protocol and submission of final report.

Chairman

**(Prof. Dr.M.MURUGESAN MD(s))**

Member Secretary

29/5/17

**(Prof.Dr.R.NEELAVATHI MD(s).,Ph.D)**

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I extend my sincere heartfelt thanks to **Dr. S. Victoria, M.D(s), Vice Principal, Government Siddha Medical College & Hospital, Palayamkottai-627002** and the **Institutional Ethical Committee, Government Siddha Medical College & Hospital, Palayamkottai-627002** for their approval and support provided as the forerunner of the study.

I am indebted and truthful throughout my life to **Prof.Dr.A.S.Poongodi Kanthimathi MD(s),** Head of the Department, Department of Sirappu Maruthuvam, GSMCH, Palayamkottai who gave her insightful comments and constructive criticisms at different stages of my research which were thought provoking and those that helped me to focus my ideas.

I express my heartfelt thanks to **Dr.A.Ahamed Mohideen, M.D(s)**, Associate Professor and my Guide, Dept. of Sirappu Maruthuvam, GSMCH, Palayamkottai, for his valuable guidance and encouragement.

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I thank all my friends who helped me in completing my dissertation.

# INTRODUCTION

Every ancient civilization has its own system of medicine during their culture. In our country the Indian system of medicine consists of siddha and Ayurvedha. Siddha belongs to south india especially tamilnadu. The history of Siddha medicine is as old as the history of the tamil culture and civilization.

The siddha system of medicine was believed to be originated from Lord shiva, then reached from Agasthiyar to other siddhars. From siddhars, this system of medicine was gifted to mankind.

Siddha medicine is based on philosophy,

“தமிழ்மண் டலமைந்துந் தாவிய ஞானம்

ஊமிழ்வது போல வுலகத் திரிவார்

அவிழு மனமுமெம் மாதி யறிவுந்

தமிழ்மண் டலமைந்துந் தத்துவ மாமே” -திருமூலர் திருமந்திரம்

The basic principle of this systems is about 96 Thathuvams. Of these ‘Panchapootha’& ‘Tridosa’ theories are most important. Disease diagnosed based on tridosa theory by Nadi. In the human body, the nervous actions which constitute movements, activity sensation etc.are due to vatham, the metabolic activity are due to pitham & Stability is controlled by Kabam. Siddhars worked out to attain the 8 Super Natural Powers called ‘Siddhi’. The Whole body is governed by the three vital forces of humours called thrithathus namely Vatham, Pitham, Kabam held in ratio 1:1/2:1/4 respectively. If these thathus are provoked by any external & internal factors, it will result as diseases.

Vatham is formed by Air & Space

Pitham is formed by Air

Kabam is formed by Earth& water.

The factors which maintain constant homeostasis of these three humours are by six tastes (Arusuvai), Life style, Dietary habits & Paruvakalam etc. The treatment aspect involves the neutralization of affected humours.

“விரேசனத்தால் வாதந் தாழும்”

“வமனத்தால் பித்தந் தாழும்”

“நசிய அஞ்சனத்தால் கபம் தாழும்”

-நோய் நாடல் நோய் முதனாடல் பாகம்-1

The human body, according to Siddha medicine is composed of Aimbudhangal [Five elements viz, mann (Earth), Neer (Water), Thee (Fire), Agayam (sky), Vayu (Air)]. All things live, move, grow & die to be dissolved again into its respective elements from which it was formed. These are the fundamental principles of creation & destruction in the universe.

Today’s modern industrialization, imbalance the ecosystem which paves way for many diseases. To uproot the diseases, there should be system of medicine which goes hand in hand with nature.

The mind, soul & body have the absolute coordination for keeping the health intact. Mental health is necessary for physical wellbeing, that’s why the popular tamil saint Agasthiyar says,

“மனமது செம்மையானால் மந்திரஞ் செபிக்க வெண்டா

மனமது செம்மையானால் வாயுவை உயர்த்த வெண்டா

மனமது செம்மையானால் வாசியை நிறுத்த வேண்டா

மனமது செம்மையானால் மந்திரஞ் செம்மையாமே”

The Siddha system of medicine is not only curative & also posess preventive, rehabilitation, rejuvenation aspects of its own kind, then other system of medicine in the world. That is Speciality of our Sirappu maruthuvam department.

In this we are studying especially preventive, rejuvenative, rehabilitative procedures belong with Varmam, Enbumurivu, Thokkanam, Tholnoigal etc.

**SIRAPPU MARUTHUVAM**

1. Yoga and kayakalpam
2. Rejuvenation therapy
3. Muppu
4. Varmam, Thokkanam, Enbumurivu
5. Kirigai

Medicine is defined as one which removes distress & leads to individual to perfect happiness.

“வேர்பாரு தலைபாரு மிஞ்சினக்கால் மெல்ல மெல்ல

புற்ப செந்தூரம் பாரே’’

-அகத்தியர் வைத்தியம் பின் எண்பது

From the above quoting, it is ideal to choose herbals initially, if no improvement then parpam and chendhooram are to be used.

There are many diseases commonly affecting the middle aged and elderly people, One among them is Yugi told ‘Santhuvatham’ which gives importance as it is mainly interfering with the principal functions of human beings (i.e) Locomotion. ‘**santhuvatham**’ is correlated with **polyarthritis** in modern medicine.

Polyarthritis is the chronic inflammation of the synovial membrane of several joints, it involves 5 or more joints simultaneously. It may be experienced at any age and is not gender specific.

In this disease, commonly major joints are involved and at a later stage it makes difficult to the individual. Hence the author is interested to try effective remedy to these patients as said in siddha literatures with the application of basic principles of siddha and also supporting by siddha modern diagnostic parameters.

The Medicine chosen to this disease are

Sarvangavatha chooranam - Internally

Ref: Sikicha rathna deepam part 2 vaithiya sindhamani.

Mukkuttu Yennai - Externally

Ref: Varma marundhu seimuraigal

I have studied clinically Santhuvatham on the basis of siddha concept on coarse diagnostic prognosis treatment, dietic aspects and external therapy in my dissertation work.

## AIM AND OBJECTIVES

### AIM

Phase II clinical study on "SANTHUVATHAM" (polyarthritis) and the drug of choice is "SARVANGAVATHA CHOORANAM" (internal), "MUKKUTU YENNAI" (external) and "NOCHI ELAI OTTRADAM" (external therapy).

### OBJECTIVE

**Primary objective**

To evaluate the Therapeutic efficacy of SARVANGAVATHA CHOORANAM (Internal), MUKKUTU YENNAI (External) and NOCHI ELAI OTTRADAM (External Therapy) in the treatment of SANTHUVATHAM.

**Secondary objective**

1. To evaluate the effect of ottradam in the management of Santhuvatham.
2. To evaluate the Siddha cofactor towards the efficacy of the trial drug SARVANGAVATHA CHOORANAM, MUKKUTU YENNAI and NOCHI ELAI OTTRADAM and to evaluate the pharmacological actions.

## REVIEW LITERATURE

## SIDDHA ASPECTS

According, the siddhar yugi's described many vatha diseases so many decades ago approximately 7th century. He classified the diseases under three dhosas such as vatha, pitha, and kaba. According to this classification vatha noi are further classified into 80 types. In that, yugi described many type of poly arthritis conditions. Santhuvatham is one of them. The symptoms of the Santhuvatham are body pain, malaise, giddiness, salivation, depression etc.

**I. Vatham :**

The term vatha denotes

- Vayu
- Dryness
- Pain
- Flatulence and
- Lightness

**Formation of Vatham:**

'வாதமாய் படைத்து
பித்த வன்னியாய் காத்து சேட்ப
சீதமாய் துடைத்து' -தேரையர் மருத்துவ பாரதம்.

**Location of vatham**

Vatham is located in the hip, below the adbomen, moolatharam and sexual organs. It is also said that vatha is settled in various places including bone, joints, nerves, vessels, hair follicles, muscles, sperm, urine and stools.

**Natural properties of vatham:**

**Function :**

- Giving Briskness
- Inspiration and Expiration
- Functioning the mind, thoughts and body
- Regulation of the Fourteen Physiological Reflexes(vegams)
- Uniform function of the Seven Udalkattugal
- Protection and Strengthening of the five sensory organs.

**Recognition of Vatham:**

Vatham can be recognized in the body by various ways one among best is from the pulse.

**Pulse:**

It is the Supreme way of detecting the mukkutram. It can be felt in various parts of the body. But in practice, appreciation of radial pulse is the best way in diagnosing disease.

**Location of Pulses:**

‘தாது முறைகேள் தனித்தகுதி சந்தோடு
ஓதுறு காமிய முந்தீ நெடு மார்பு
காது நெடுமூக்கும் கண்டம் கரம் புருவம்
போதுறு முச்சி புகழ் பத்தும் பார்த்திடே’

-திருமூலர் நாடி நூல்.

According to this poem there are ten important parts to feel the pulses.

They are:

- Ankle Joint (Dorsalis pedis, Posterior Tibial)
- Kaamiyam (Femoral Angle)
- Abdomen (Epigastric Pulsation)
- Chest (Apical Impulses)
- Ear
- Nose
- Neck (Carotid)
- Arm (Radial and Brachial)
- Eyebrows.

**Relationship between Vatham and Suvai:**

**Aggravating tastes**

“புளிதுவர் விஞ்சுங்கறி யாற்பூரிக் கும்வாதம்
ஒளி யுவர்கைப் பேறில் பித்துச் சீறும் - கிளிமொழியே
கார்ப்பினிப்பு விஞ்சிற் கபம்விஞ்சு ஞ்சட்டிரதச்
சேரப்புணர் நோயணுகாதே” - கண்ணுசாமியம்

According to this poem the sour and astringent tastes increase the vatha humour.

**Neutralising tastes**

“வாத மேலிட்டால் மதுரம் புளியுப்பு
சேதமுறச் செய்யுஞ் சிறையெம் - ஓதக்கேள்
காரந் துவர்கசப்புக் காட்டுஞ் சுவையெல்லாம்
சாரப் பரிகாரஞ் சாற்று - கண்ணுசாமியம்

According to this poem sweet, salt and sour can neutralise the vitiated vatha humour.

- ✓ **Relation with Elements:**
  - Universe originally consisted of atoms which constituted to the five basic elements (pancha boothas) namely, Earth, Water, Fire, Air, and Ether which Corresponds to the five sense of the human body and they were the fundamentals of all Corporal things.
  - The Earth gives shape to the body and release its energy, bones, muscles, nerve represent it in the body.
  - The Water makes the Earth supply and helps in the transformation of energy, serum, lymph, saliva etc represent it in the body.
  - The Fire makes the form of the body steady and gives vigour and stimulation. Digestion and Circulation represents it in the body.
  - The Air Ignites the fire and works as a life carrier and is the support of all contact and exchanges. Respiratory and nervous system represent it in the body.
  - The Ether is the Creator of life itself in the body.

The food we eat has six tastes namely sweet, sour, salt, bitter, pungent, astringent.Each of them is a mixture of two basic elements.

| | | |
|---|---|---|
| இனிப்பு | - | மண் + நீர் |
| புளிப்பு | - | மண் + தீ |
| உப்பு | - | நீர்+ தீ |
| கைப்பு | - | வளி + ஆகாயம் |
| துவர்ப்பு | - | மண் + ஆகாயம் |
| கார்ப்பு | - | வளி + தீ |

**II. Pitham**

The term pitham denotes gastric juice, bile, energy, heat and anger etc.

**Location of pitha**

Head, heart, bladder, abdomen, umbilicus, stomach, saliva, sweat, blood, eyes and skin are the sites of pitham.

**Effects of vitiated pitham**

Excessive heat in the body, improper digestion, excessive sweat, giddiness, syncope and immortal behaviours are some of the ill effects of vitiated.

**III.Kabam**

**Location of kabam**

The kabam is located in the tongue, chest, blood, bone marrow, bones, nerves, brain, large intestine, eyes and joints.

**Functions of kabam**

The important functions of kabam are maintaining the unctuous and viscosity and proper functioning of the joints.

**Effects of vitiated kabam**

Pain in the long bones, dysfunction of the joints, improper digestion, excessive sleep and inhibition of understanding capacity.

**SYNONYM**

SANTHU VATHAM = SANTHU + VATHAM, SANTHU – joints, VATHAM – Derangement of the vatham constituent therefore, we can say that santhuvatham means the joints are affected by derangement of vatham.

In siddha system of medicine, a human being is composed of 96 basic principles, among them the first thirty is considered very vital and the rest are the manifestation on extension of the first 30 principles. These thathuvas are universal to all human beings in normal condition. This not only consist of the physical components of the human body but also the mental, intellectual components like passions, qualities, knowledge, functions of the sense and motor organs and also their coordination.

Panchaboothas are the foundations for three dosham. vatham, pitham, kabam which are the pillars that support our body structure.

The concept that the five elements are the basis of the formation of Macrocosm and Microcosm is quoted in Sattamuni Gnanam by Siddhar Sattamuni as follows,

“அண்டத்தில் உள்ளதே பின்டம்
பிண்டத்தில் உள்ளதே அண்டம்

அண்டமும் பிண்டமும் ஒன்றெ
அறிந்து தான் பார்க்கும் போதே -சித்த மருத்துவாங்க சுருக்கம்

The changes even minute, in any one of these two (the macrocosm or microcosm) will reflected in the other appropriately.

**Fate of three humours**

"அறிந்திடும் வாதமடங்கு மலத்தினில்
பிரிந்திடும் பித்தம் பேராஞ்சலத்தினில்
மறிந்திடுமையம் வசிக்கும் விந்துவில்
உறைந்திம்மூன்றுக் குறவாந்த லமிதே"

- திருமூலர்

From the above quoting, it is clear that the three humours can be discharged through the following routes.

Vatha - Faeces
Pitha - Urine
Kaba - Semen(sukkilam) /suronitham

**Classification of vatham**

Vatha can be classified into ten types. This has been said in Yugimuni 800 as follows.

"முறையாம் பிராணனோ டபானன் வியானன்
மூர்க்கமா முதானனொடு சமான னாகம்
திறமை யாங் கூர்மனொடு கிருகரன்றான்
தேவ தத்த னொடு தனஞ் சயனுமாகும;". -யூகி வைத்திய சிந்தாமணி

1. Piranan
2. Abanan
3. Viyanan
4. Udhanan
5. Samanan
6. Nagan
7. Koorman
8. Kirugaran
9. Devadhaththan
10. Dhanajeyan

Each one is responsible for various actions within the body.

**1. Piranan:** (Heart Centre)

It refers to the chest and it regulates the respiratory system and helps the digestive system.

**2. Abanan:** (Muladhar Centre)

The type of vatha corresponds to the pelvic and it is the seat of kundalini energy and controls excretions such as sweating, evacuation of stools, ejaculation of sperms, micturition, menstruation and parturition (delivery of child). Abana vayu is one of the 14 physiological reflex actions (Vegas) of the body. When its expulsion is partially or completely obstructed it leads to diseases like vayu gunmam, kudal vatham, vali vatham.

**3. Udhanan:** (Throat centre)

This corresponds to the pharyngeal plexus in the throat region and controls breathing and speech. It is also responsible for the physiological reflex actions like vomiting, hiccough, cough etc.

**4. Vyanan:**

It helps in the circulation of energy through the entire nervous system and helps in the movements of various parts of the body. It is responsible for the tactile sensation.

**5. Samanan:** (Navel centre)

This corresponds to the solar plexus etc. By balancing the other vayus, the six tastes, water and food any one of the vayus is affected, this samanan is also affected.

**6. Naagan :**

It is responsible for the intelligence of an individual. It helps learning different arts, singing of good songs etc. It is responsible for blinking, opening of eyes and eyebrow raising.

**7. Koorman :**

This is responsible for yawning, closing of mouth, yielding strength and also blinking. It helps closing and opening of the eyes and shedding of tears. It is responsible for the vision.

**8. Kirukaran :**

It is responsible for the salivation in the oral cavity and mucous secretion in the nasal cavities. It is responsible for good appetite. It helps in meditation. It produces cough and sneeze.

**9. Devadhathan :**

It is responsible for the lazziness and also lassitude while waking up. It helps movements of the eyeball in various directions. It is responsible for quarrelling, arguing etc., and also for much anger.

**10. Dhananjeyan :**

It is responsible for the swelling all over the body. It produces sensation of roaring like the sea in the ears. It leaves the body by blowing up the cranium on the 3rd day after death.

In Ashtanga Sangiraham, Noi nadal noi muthal naadal part -II, Thanvanthri vaithiyam and

in Jeeva Rakshamirtham,

Vatha disease is classified in to 80 types.

In Agasthiyar 2000,

‘என்பது வாதமிகு மிருவகைப் படுத்துக் காணில்
நண்புறு அரைக்கு மேலே நாற்பது வாதமாகும்
பண்சேரரைக்குக் கீழே பத்துநாள் காகுமென்று
வண்டுசேர் குழலினாளே வாதத்தின் கூறுதானே’

i.e 40 types of vatha disease are in the upper half and 30 in the lower half of the body and the total number is 80.

**INFLUENCE OF VATHAM IN MONTHS:**

‘‘வாதவர்த் தன காலமேதோ வென்னில்
மருவுகின்ற ஆனி கற்கட மாதம்
ஆதனைப் பசியோடு கார்த்திகை தன்னில்
ஆடருமே மற்ற மாதங்கள் தன்னில்
போகவே சிமிக்கின்ற காலமாகும்’’

\- யூகி சிந்தாமணி

According to this poem vatha may be influenced in the following months normally. They are Aadi, Avani, Purattasi and Iypassi.

**AGONIST QUALITIES OF VATHAM: -**

Normal qualities of vatha are,

- ✓ Dry
- ✓ Cold

- ✓ Subtle
- ✓ Rough
- ✓ Unstable
- ✓ Light

**ANTAGONST QUALITIES OF VATHAM:**

- ✓ Unctuous ‘Hot
- ✓ Solid
- ✓ Soft
- ✓ Stable
- ✓ Heavy

**EXAGGERATED VATHAM:**

- ✓ Constipation
- ✓ Abdominal disturbances
- ✓ Fatigue
- ✓ Depression of sense organs
- ✓ Giddiness
- ✓ Incoherent speech
- ✓ Rigors
- ✓ Insomnia
- ✓ Fond of eating hot food stuffs
- ✓ Emaciation with blackish discolouration
- ✓ Loss of vigour.

**DECLINED VATHAM:**

- ✓ Vague pain all over the body
- ✓ Low-pitched voice.
- ✓ Difficulty to do any work.
- ✓ Reduction of intelligence
- ✓ Syncope
- ✓ Symptoms of hyperkapha.

**SANTHUVATHAM:**

Santhuvatham is one of the Vatha Diseases, which is described in Yugi Vaithiya sinthamani.

**Definition:**

The term Santhuvatham denotes all kinds of joint disease caused by the dearrangement of one of the Uyir thathus 'Vatham'

In the same literature it is mentioned in such types of Joint disease as Megasoolai under the Chapter of 'Soolai noigal'. In some other literatures, Santhuvatham was Mentioned in different names as 'Santhuvali', 'Moottuvali', 'Megasoolai', 'Mudakkuvayu', 'Aamavatham', 'Keelvayu'.

-Siddha Maruthuvam

Restriction of Movement and in some cases, even Immobility of the joints can occur, so it may be named as, MUDAKKU VAYU or MUDAKU VATHAM.

Thus the terms of this disease are named according to the cause, Dearrangement of Uyirthathu, Kurikunam, Site of lesion, Complication etc.

They are as Follows:

| | |
|---|---|
| Cause | - Megasoolai |
| Dearrangement of the vatha UyirThathu | - Vathasoolai, Santhuvatham. |
| Dearrangement of Kabha uyirthathu | - SantheegaSileshmarogam |
| Kurikunam | - Soolai Kattu. |
| Site of Lesion | - Mootu vali, Santhu vali, Keelvayu. |
| Complication | - Mudakku vatham. |

In TV Sambasivampillai Medicinal Dictionary, Santhuvatham is described as,

"சந்துவாதம் - பொதுவாக அழற்சியினால்
உடம்பில் முழங்கால் முதலிய பொருத்துகளை
தாக்கி வீக்கம் கண்டு, வலியுடன் கீல்களை
சுற்றியுள்ள சவ்வுக்கு காணும் ஓர் வாத நோய்".

A form generally employed to inflammatory disease acute or chronic of the whole or greater part of the fibrous structures that constitute the formation of a joint - Arthritis.

"சந்துகள் மிக திமிர்த்து உடம்மெல்லாம்
மிக நொந்து மயக்கம் வாய் நீருறல்,கைகால்

பூமியில் தரிக்கவொண்ணாது வலியை
உண்டாக்கும் வாதநோய்".

"Rheumatism is characterized by inflammation with the thickening of the fibrous tissues, bodily suffering, giddiness, salivation and unbearable pain in the limbs rendering the patient unable to stand firmly".

**Clinical Features of Santhuvatham:**

As mentioned in the text of **Yugimuni Vaithiya Sindhamani**,

Santhuvatham is a disease characterized by, Difficulty in walking and inability to do the works with hands and legs as usual due to the stiffness of joints and pain of the body. Extra Articular Symptoms associated with this disease are Excessive Salivation, Dryness of tongue, Lassitude and lethargy.

Vatha pitha Soolai Causes Ankylosis of the Joints along with some Extra articular lesions like Thickening of the skin, Ulcers etc.

The Condition of Vatha soolai Characterised by aches and pain of Upper and Lower limb joints, Swelling, Abdominal Pain are associated with Emaciation.

The disease Santhuvatham is Characterised by Difficulty in Walking, Inability to work and is a disorder of Joints (Santhu) where Bone, Muscles, Tendons and associated structures binds together, For the Purpose of Locomotion of the body, caused by dearranged Humour Vatha.

The derangement of vatham occurs under various conditions:

a. Environmental factors
b. Physical factors
c. Factors of kanmam

A. **Environmental factors**:

ஆடியாதியாய் ஐப்பசி ஈறாய்
அனிலமதற் கோரரசியல் காலம்'

According to sathaganadi, the vatha diseases are predominant in the months from aadi to iyppasi.

B. **Physical factors**:

'வளிதசு காய் கிழங்கு வரைவிலச தயிலய்கோழை
முளிதயிர் போன்மி குக்கு முறையிலா வுண்டி கோடல்
குளிர்தரு வளியிற் றேகங் குனிப்புற வுலவல் பெண்டிற்
குளித்தரு முயக்கம் பெற்றோர் கடிசெயல் கருவியாமால்' -சித்த மருத்துவம்.
(சபாபதி கையேடு)

According to siddha maruthuvam (sabapathy kaieyedu) indicates excess intake of carbohydrate diet, curd, inappropriate diet, exposure to cold, increased sexual action will disturb vatha and thus cause vatha disease.

C**. Factors of kanmam:**

According to **Agathiyar kanma kaandam 300**

‘‘நூலென் வாதம் வந்த வகைதானேது
துண்மையாய்க் கன்மத்தின் வகையைக் கேளு
காலிலே தோன்றியது கடுப்பதே
கைகாலில் முடக்கியது வீக்கமது
கோலிலே படுகின்ற விருட்சமான
குழந்தை மரந்தனை வெட்டமேல் தோல்சீவல்
நாலிலே சீவசெந்து கால் முறித்தல்
நல்ல கொம்பு தழை மறித்தல் நலித்தல் காணே’’

\- அகத்தியர் கன்ம காண்டம் 300 பாடல்-56

In siddha system many disease are due to kanmam which means the deeds or bad commited by an individual in his previous and the presence of births. The genetic dispositions of certain disease are probably the result of kanmam.
Classification of santhuvatha diseases:

There are 80 types of vatha diseases are explained in **Yugimuni Vaidhya Sinthamani** among them, 11 types of vatha diseases are associated with Polyarthritis. They are

- Santhuvatham
- Vathasuronitham
- Kalanjagavatham
- Uthira vatha suronitham
- Narithalai vatham
- Malaitha kambha vatham
- Vatha upakatham
- Kumba vatham
- Thandaga vatham
- Sagana vatham

- In **Agasthiyar Vaidhya Kaviyam** 5 types:
    - Vathasoolai
    - Vatha Azhal soolai
    - Marbil soolai
    - Azhal soolai
    - Aamavatha soolai
- In **Jeeva Rakshamirtham** 7 varieties are explained as
    - Vatha soolai
    - Pitha soolai
    - Kapha soolai
    - Mukkutra soolai
    - Aama soolai
    - Sankara soolai
    - Gunma soolai
- There are additional 2 types in **Anubava Vaidhya Devaragasiyam**
    - Megasoolai
    - Murisoolai
- In **Aathmarakshaamirtha, Vaidhya sara sangiraham,** the joint diseases are classified into 25 varieties.
- In **Thirumoolar Karukkadai Vaidhyam – 600**
    - Vatha soolai
    - Pitha soolai
    - Kapha soolai
    - Vathapitha soolai
    - Seezhmega vaayu soolai
- In **Agasthiyar gunavaagadam**
    - Vatha soolai
    - Vathaazhal sollai
    - Azhal soolai
    - Iya azhal soolai
    - Seezhmega soolai

**Complication of santhuvatham:**

As the disease progress, joint disease leads to deformity and immobilization of the limbs.

In mudakkuvatha condition body will bend forward and rounding the shoulder probably due to vertebral column deformity (hang log position). Due to mudakkuvatha affliction one cannot straighten is body after bending and also inability to walk with joint pain.

In **chikitcharathna theepam** hand involvement also stated, where there is disability of hand, fever and swelling are described in Kaimudakku vatham. Diagnostic methods adopted in siddha system of medicine are formed as "Piniyari muraimai". It is based on the following principles.

1. Poriyal arithal
2. Pulanal arithal
3. Vinathal

Pori and pulan are the five organs of perceptions and their senses respectively.

Nose-smell, Tongue – taste, Eyes –vision, Ears & Skin – Auditory & touch. Porigal of patient and doctor are used by the physician as instruments.

Vinathal is a method of enquiring about the details of patient's complaints from his own words or from their attendant.

The above mentioned principles can be compared to that of interrogation and inspection, palpation, percussion, auscultation. The important method adopted to diagnose the disease is by means of "Envagai thervugal".

"நாடிப்பரிசம் நாநிறம் மொழிவிழி
மலம்மூத்திரமிவை மருத்தவராயுதம்"

\- நோய்நாடல் நோய் முதனாடல் பாகம் I

**Envagai Thervugal includes**

Naadi, sparisam, naa, niram, mozhi, vizhi, malam, moothiram.

**Naadi (pulse)**

"அறிந்து பார் வாதமே தனித்த தானால்
அன்னம் போல் நடக்குமப்பா நாடி பாரு
சரிந்திடவே கால் முடக்கும்போது காட்டும்"

\- அகத்தியர் ரத்தின சுருக்கம்

Vitiated vatha causes difficulty in walking or impaired function of lower extremities. The examination of naadi has been recognised as one of the principle means of diagnosis and prognosis of disease from times immemorial.

**Sparisam (skin)**

Skin examination can be made out by touch and reveals about warmness, chillness, dry, weeping, skin rough, smooth, soft, hard, tenderness or presence of ulcers, swelling, wrinkles, hair, pigmentation etc.

**Naa (Tongue)**

The colour, character and condition of the tongue changes according to the changes in mukkutrum.

**Niram (colour):**

As vaatha is the root cause the colour of the patient's skin, tooth etc., should be dark or black in colour.

**Mozhi (Speech):**

Speech in vatha patients may vary according to the deranged doshas and grade of the disease.

**Vizhi (Eye):**

Burning of the eyes, lacrimation, irritation, colour changes are also noticed under this group. In Santhuvatham patients no changes in the eyes.

**Malam (stools):**

In Santhuvatham patient stools should look in dark colour with constipation.

**Moothiram (urine):**

"உறைந்த நீருங் கரு கருத்து
முறையாய் ரோகமு முண்டாமே" -அகத்தியர் நாடி
"அரவென நீண்டிடின.்.தே வாதம்"

When the oil drop spreads like a snake it indicates vathaneer.

**UYIR THATHUKKAL IN SANTHUVATHAM :**

**Vatham**

1.Pranan : Inspiration and expiration responsible for sneezing coughing and belching. Not affected

2Abanan : Act with downward movement. Affected (constipation).

3.Viyanan : Helps in various movements of body, responsible for sensation. Affected (Restricted movement of affected joints radiating pain also present with tingling sensation).

4.Udhanan : Regulates the higher functions of brain. Responsible for physiological reactions like hiccough and vomiting. Not affected

5.Samanan : Regulates all other vayus. Affected (Due to vyanan affected).

6.Nagan : Responsible for intelligence helps in opening and closing of eyes . Affected in aged pateints. (Acuity of vision is deminished.)

7.Koorman : Responsible for lacrimation. Helps in visualization of all things of world.

8. Kirukaran : Produce cough and Sneeze and helps in digestion.

8.Devathathan: Responsible for lazziness. Rotation of eyeballs, Affected (Sleeplessness).

9.Thanajeyan : Responsible for tinnitus oedema.

**Pitham**

1.Anar pitham : Digests all the ingested particles. Affected (loss of appetite).

2.Ranjagapitham : Increases the blood and gives colour to the blood Affected (decreased Hb level.)

3.Saathaga pitham : Makes the work to complete what mind thinks to do. Affected (Restricted movements & pain present)

4.Prasaga pitham : Gives colours to skin. Not affected

5.Aalosaga pitham : Responsible for clear vision. Affected in old age peoples.

**Kabam**

1.Avalambagam : Controls other 4 types of kabam. Affected

2.Klethagam : Moistens the food. Not affected

3.Pothagam : Helps to know the taste. Not affected

4.Tharpagam : Gives cooling effect to the eyes. Not affected

5.Santhigam : Gives lubrication to joints. Affected (Pain and restricted movements present)

**UDAL VANMAI:**

It means strength and vitality of the body and classified into three types.

- Eyarkai vanmai - Inherited immunity
- Kala vanmai - age, season and time
- Cheyarkai vanmai - improvement of 3 vitality obtained by diet, day today habits and physical exercises.

**SEVEN PHYSICAL CONSTITUENTS OF BODY**

1. Saaram : Strengthens the body and mind. Affected.
2. Senneer : Preserves brightness, boldness, power& knowledge. Affected.
3. Oon : Gives structure and shape to the body. Early stage - Not affected. Later stage - Affected
4. Kozhuppu : Responsible for movement lubricants the joint. Affected.
5. Enbu : Responsible for joint movement -Affected.
6. Moolai : Present inside the bones and gives strength to the bones. Not Affected.
7. Sukkilam or suronitham: Responsible for next generation of human being - Not affected.

**Thinai (land and place)**

The geographical distribution of the land is classified into five regions.

| | | | |
|---|---|---|---|
| 1. | Kurinji | - | Mountain and its surroundings |
| 2. | Mullai | - | Forest and its surroundings |
| 3. | Marutham | - | Field and its surroundings |
| 4. | Neithal | - | Sea and its surroundings |
| 5. | Paalai | - | Desert and its surroundings |

Accordingly, vaatha diseases are common in neithal nilam. Palai nilam - common places for all types of diseases. Marutha nilam is good for all types of treatment and health.

**Kalam**

According to siddha system the year is divided into six seasons with reference to the position of earth and sun.

| S.No. | Paruvakalangal | Kuttram |
|---|---|---|
| 1. | Kaarkalam – (ஆவணி, புரட்டாசி) | August, September Vatham ↑ ↑Pitham ↑ |
| 2. | Koothirkalam - | October, November (ஐப்பசி, கார்த்திகை)Vatham (-)Pitham ↑ ↑ |
| 3. | Munpanikalam - | December, January (மார்கழி, தை) Pitham ↑ |
| 4. | Pinpanikalam - | February, March (மாசி, பங்குனி) Kabam ↑ |

5. Ilavenilkalam - April, May

(சித்திரை, வைகாசி) Kabam ↑

6. Muduvenilkalam - June, July

(ஆனி, ஆடி) Vatham ↑

**SANTHUVATHAM AFFECTED IN 96 THATHUVAM:**

1. Bootham : Mannn, Appu, Vayu and Aagayam.
   Symptoms : Deranged vatham 4 boothams.

2. Pori : Mei (Aagaya bootham).

3. Pulan : Ooru
   Symptoms : Pain and tenderness

4. Kanmenthiriyam : Kaal and Kai
   Symptoms : Pain, numbness,weakness, destroying,loosening, burning.

5. Kanmavidayam : Kamanam, Thaanam
   Symptoms : Difficulty to normal movements in limbs.

6. Naadi : Edakalai, Pinkalai, Suzumunai .Three humours are found by these naadies.

7. Vayu : Piranan - Deranged vatham
   Samanan - Vayu increased in joints
   Devadathan - Drowsiness, tremor
   Abanan - Constipation
   Udanan - Salivation, dryness of mouth
   Kirukaran - Salivation, mental agony

8. Kosam : Vali Udambu, Paru Udambu, Arivudambu, Inbaudambu. Derranged three humours and seven udal thathu, drowsiness, mental agony, weakness.

9. Aatharam

| | | |
|---|---|---|
| Moolatharam | - | Weakness |
| Swathitanam | - | Drowsiness |
| Manipooragam | - | Destroying |
| Anagatham | - | Burning sensation |
| Visutthi | - | Tremor |
| Aakinai | - | Dryness of mouth |

10. Gunam: Thamo Kunam -Drowsiness, Mental agony character is one of the main etiology.

11. Vinai : Thivinai is one of the main etiology for the santhuvatham.

**Uyir Thatukkal:**

1. Vatham

| | |
|---|---|
| Abanan | Constipation |
| Viyanan | Pain and numbness in joints |
| Samanan | Pain all over joints |
| Devadathan | Drowsiness, mental agony |

2. Pitham

Sathagam : Difficulty to work, due to pain and numbness, mental agony, tremor weakness

3. Kabham

Santhigam : Destroying, loosening, inflammation, burning sensation in joints, chillness of joints, weakness, pinching of joints.

**Affected Udal thaathukkal**

**Symptoms**

| | |
|---|---|
| Saaram | Salivation, Dryness of mouth |
| Enbu | Burning Sensation of joints, loosening, pain in all over the joints |

**நோய் நிதானம் (DIFFERENTIAL DIAGNOSIS):**

**காளாஞ்சகவாதம் (Kalanjaga Vatham):**

Though the patient had numbness in both upper and lower limbs, twisting pain in joints destroying and inflammation, difficulty to walk, emaciation, cripple, rigidity due to morbid enlargement, wasting in body, pallorness, itching, ulcer, deranged iyyam, indigestion, drowsiness, it is not santhuvatham.

**வாதசுரோணிதம் (Vatha suronitham)**

Though the patient had Wasting in whole body, swelling in joints, difficulty to walking, swelling in carpal joints, itching in all over the body, loss of appetite, coma, salivation, it is not sathuvatham.

**உதிரவாதசுரோணிதம் (Uthiravatha Suronitham)**

Though the patient had, swelling in ankle joint, knee joint and heel pain and inflammation in carpal and tarsal joints, drowsiness, exhausted, madness, deranged Azhal humour, loss of appetite, it is not santhuvatham.

**மேகசூலை (Mega Soolai)**

Though the patient had pain in lower back and both limbs, constipation absolute suppression of urine, sweating in both limbs, shivering, redness in lips, wasting, burning sensation all over the body, fever, thirst, perplexity, mental delusion, it is not santhuvatham.

**வாதசூலை (VathaSoolai)**

Though the patient had, pain in both limbs, numbness, coma, pain in the body, chillness, pallorness in body and face, pain in the thigh, burning micturition, haematuria, pain increase in the body, it is not santhuvatham.

**பித்தசூலை (Pitha soolai)**

Though the patient had wasting and emaciation, pain in both limbs and joints, deranged humours, pallorness in all over the body, drowsiness and delusion, it is not santhuvatham

Santhuvatham is differentiated from other types of keel vaayu as follows:

**வளிஅழல் கீல்வாயு (Vali Azhal Keel Vaayu)**

It is characterized by excruciating pain and swelling involved in toes, knee joints, hip joints, elbow joints, shoulder joints and associated with systemic disturbances like dryness of mouth, pyrexia, headache, palpitation, constipation and sweating. In advanced cases it may affect the heart and produce “Thamaraga Vaayu”.

**ஐயகீல்வாயு (Iyakeel vaayu)**

It is characterized by severe pain in the joints associated with emaciation of the body, anorexia, insomnia, cough, hiccough, vomiting, anemia and dropsy. The common sites are spinal cord, hip joint and knee joint

**VALI IYAKEEL VAAYU**:

It is characterized by pain in the joints associated with effusions of joint fluid and swelling, restricted joint movements, pyrexia, fainting, insomnia, especially in knee joint asymmetrically, lymphadenopathy, generalized malaise, atrophy of the affected limb etc., The affected joint looks like **"Fox's head".**

**LINE OF TREATMENT**

According to siddha system, the main aim of the treatment is to cure physical illness and mental illness. Treatment is not only for complete healing but also for the rejuvenation .Siddha system of medicine has a sophisticated treatment modality. It not only cures the disease but it corrects the causative factors and insists to advise certain life style modification in order to prevent the disease again.

**Thiruvalluvar** says about physicians duty, study the disease, study the cause, seek subsiding ways and do what is proper and effective.

'நோய்நாடி நோய்முதனாடி யதுதணிக்கும்
வாய்நாடி வாய்ப்பச் செயல்''

'உற்றானளவும் பிணியளவுங் காலமும்
கற்றான் கருதிச் செயல்''

- திருக்குறள்

So it is essential to know the disease, the etiology, the nature of the patient, severity of the illness, the seasons and the time of occurrence must be observed clearly.

**Line of treatment is as follows:**

In Siddha system line of treatment consists of the following

1.Neekam (Treatment)

2. Niraivu (Restoration of wellbeing)

3. Kappu (Prevention)

**NEEKAM:**

a) To bring the Three Thodams to equilibrium state.

b) To treat the patient by Internal and external medicines.

c) To stabilize seven Udal thadhukal and three Uyir thadhukal.

To bring the three Thodams to normal equilibrium state-by giving purgation.

**Purgation drug:**

Purgation was given in early morning for balancing the deranged mukkutram on the first day of the treatment. Next day onwards the trial drugs. **SARVANGAVATHA CHOORANAM** (internally) and **MUKKUTU YENNAI** (externally) were given.

Apart from other department, sirappu maruthuvan department gives equal importance to complementary therapies in Siddha system of medicine along with its internal and external medicines. There are several complemtary therapies followed in Siddha system of medicine such as kattu, patttu, Nasiyam, Attai, Vidal, Thokkanam, Ottradam, Varmam, Asanam, Vedhu etc.

**SIRAPPU MARUTHUVAM :**

**1.THOKKANAM**

**2. OTTRADAM**

**THOKKANAM**

Thokkanam is the siddha way of touch therapy. it is the physical manipulation of the body usually done with or without oil application. It is very effective for neurological and musculoskeletal problems. It also promotes mental and physical fitness. According to siddha, disease in the body occur due imbalance of three humours that is vatham, pitham and kapham which in turn are governed by five fundamental elements – Akayam (Space, vayu (air), Theyu (fire), Appu (water and Mann (Earth. Thokkanam is one of the 32 types of external medicines mentioned in siddha literature. In this technique, the physician uses his hands on the body of the patient in 9 different unique ways with or without using medicated oil with acurative or palliative point of view. The 9 different techniques in thokkanam which makes siddha medicine unique in all aspects. They are

1. Thattal or patting technique
2. Irukkal or tightening
3. Pidithal or holding

4. Murukkal or twisting
5. Kattal or tying
6. Azhuthal or pressing
7. Izhuthal or pulling
8. Mallathuthal or supinating

**Benefits of Thokkanam**

- Helps to cure vatha disease even without internal medicines.
- Chronic disease like spondylosis, lumbago, disc prolapse, hemiplegia, neurological conditions etc are managed well through thokkanam.
- Improve circulation
- Treats obesity
- Helps in pain relief
- Removes indigestion, constipation and flatulence
- Induce sleep
- Helps maintain normal blood pressure
- Restores vatham, pitham and kapham in normal ratio
- Regulates vatha humour.
- Delays the aging process
- Helps to rejuvenate the body.
- Helps to increase the quantity of oxygen in the cells.
- Helps to prevent wrinkles and maintain the complexion of the skin.
- Tones the muscles
- Helps to keep the joint flexible
- Improves the complexion of the skin
- Improves energy and mental alertness.

**Introduction**

External remedies in siddh are classified as 32 in number. The unique remedy of its kind among all and which is subdivided into nine more procedures in thokkanam. Initially these procedures were used only for royal families to enhance rejuvenation and latter turned into a therapeutic application.

Thokkanam as a whole focuses on treating disease caused by aggravation of 'VATHAM' the kinetic force of the body. The humoral theory of siddha states that

vatham is the acitve force responsible for the physiological functioning of neuromuscular as well as musculo skeletal systems.

Thokkanam is also useful in disease where pitham as well as kapham is deranged. A simple thokkanam session wipes of sedentary feel which is a kapham aggravation.

Toning the skin, muscles and nerves where vatham lives. It is synonymously called as Marthanam. Marthanam is performed by mallars (wrestlers) in older days. As per siddha basic principles the meeting points of muscles, nerves, joints and skin including hair roots are places of flow of vital vatham energy. A depletion of vatham vital energy may lead to vatham derangements such as pain, altered tone, power, twitching, spasticity, rigidity numbness and neuritis.

**Three humour theory and thokkanam**

To have a sound knowledge in application of thokkanam clinically it is mandatory to know about three humour theory. Vatham is the force of creation. Pitta is the force of maintenance, and kapham is the force of destruction.

Vatham takes care of bodily funciton as below

1. Respiration - Uyirkal (Pranan)
2. Excretion - Keel nokku kaal (Abanan)
3. Circulation - Paravukal (Vyanan)
4. Digestion - Nadukkal (Samanan)

**Thattal – Friction and Percussive strokes**

Thattal covers more than 40% of techniques of Marthanam.

Friction strokes are used in joints, muscles and in tendons. Friction strokes are usually relaxing when applied gently. Therapist should not exceed the toleratble and pleasurable pressure.

Percussive strokes are sub divided into hacking, cupping and pinching – plucking. In hacking palms are open and faces each other.

Cupping is performed effectively in larger areas like trunk, back and abdomen.

Lifting little flesh in fingers and sliding them is pinching/plugging.

**Irukkal**

Irukkal is squeezing type of pressure. Irukkal is applied in conditions where a good nourishment to muscles and nerves is deficit. It is also called as wringling. It is usually performed across body and limbs. Wringing is usually applied in the end

hours of Thokkanam. Squeeze and roll the muscle between your neck and shoulder. It's hard to tell from the photo that he's doing anything other than squeezing the muscle, But you should in addition to squeezing your muscle also pull or roll the muscle between your fingers. Try it. first squeeze the muscle, just like you did above. Then pull it a little and roll it in a small circle of back and forth. Try 7 slow squeeze and rolls on your trapezius muscle varying the intensity of each stroke. Let your muscles relax.

**Ilutthal**

Ilutthal is pulling. In this type of thokkanam, strokes are used to pull and stretch the muscles of the trunk and legs. Pulling is performed before wringing or along.

**Murukkal**

Murukkal is kneading. It is performed to release muscle tension and to improve circulation kneading is performed in areas which are fleshy. Action similar to that of kneading dough is to be performed here.

**Pidithal**

Both pressing and draming is performed in this variety. Press the muscle areas gently and drain them slowly. Draining is performed usually using the heel of the hand for larger areas and thumbs for smaller areas. Pidithal improves circulation and relaxes the muscles.

**Aluthal**

Aluthal is the combination of gliding and gentle pressing. Usually these two procedures initiates massage and repeatedly performed in the whole session gliding is the technique used to apply oil all over the body. Gentle pressing all over the body following gliding. Gliding can be done in longitudinal or circular motion.

**Purpose**

Gliding is a good beginning for every massage. It warms your skin and sends a message to your body that a massage is coming.

**Massage (தொக்கணம்)**

வாதம் முதலிய முக்குற்ற பிணிகள் உண்டாக்கும் வலியை வெறுங்கையாலோ (அ) தைலம் தடவியோ பிடிப்பது.

தொக்கணத்தி னாலிரத்தந் தோல்ஊ ணிவைகட்கு

மிக்கு சவுக்கியஞ்ச மீரணும்பொ – மெய்க்கதிக

புட்டியுறக்கம் புணர்ச்சி யிவை கதிக்கும்

பட்ட அலைச்சலறும் பார்'' - **தேரன்**

Of these 2 of the methods are very much beneficial in treating cervical spondylosis.

**பிடித்தல்**

''பிடித்தலி யங்கும் மைதியி னுந்தகும் பிந்தாதே – எண்ணெ

யுடுத்தது செய்யிற் றசவளி யூனுட லுந்தாதே

வேற்றது செய்யினுஞ் சூசிகை பாரிசை விட்டோடும் - புலி

போற்றது வாயுவு மற்றுது மேனலிப் பொட்டோடும்''

தொக்கணம் செய்யக்கூடிய 5 நிலைகளிலும் செய்யலாம். தைலம் தடவியோ, தடவாமலோ பிடித்துவிட வாத நோய்களுக்கு சிறப்பாக பொருந்தும்.

It is made on the upper fibers of trapezius muscle and the underlying bone.

**இழுத்தல் (Pulling)**

இழுத்தல் கிடத்த லிருத்த லிரண்டிற்கு மேராமே – என்பில்

முழுத்தது வண்ணுகங் கானமந் தக்கதி சீராமே

உருவுத லென்பது மித்தோழி லேநேரம் பூறாகி – மனம்

வெருவுறு மூன வினைகளை மெய்யடு வேறாகி

வளக்குறு மெண்ணெய் லேயிது செய்வது வல்லாண்மை – உடற்

களக்களுர் போக்கச் சுளுக்கென வாவதித் தொல்லாண்மை''

இதை தைலத்தை பூசியே செய்யவேண்டும். எலும்புகள் நன்றாய்த் தெரியுமிடங்களிலும், தலையிலும் உருவும்போது மந்தமாக செய்யவேண்டும்.

இதனால் நரம்பில் ஊறி வறுத்துகின்ற வாயுக்கள், பிடிப்புகள், சுளுக்குகள் குணமாகும்.

Done for sternocleidomastoid muscles.

The treatment normally starts with applying the medicated oil on the affected area. It directly acts on lymphatic, muscular, nervous and vascular system.

- Strengthens muscle and skin
- Relaxes whole body
- Regulates nerve function
- Improve blood circulation
- Improve sleep

Through massage, the medicated oil applied permeates through the skin and reaches the tissues under them. It releives pain and tension by stimulation the sensory and motor nerves.

**Benefits**

It reduces the production of some hormones such as cortisol and nor epinephrine which are responsible for stress.

- Brings fresh oxygen to the affected tissues.
- Swelling and thickening of tissues are reduced.

**FOEMENTATION**

**Definition**

A fomentation consists of a local application of moist heat to the body surface. A fomentation is usually made of blanket material. 50% wool to retain heat and 50% cotton to retain moisture and be more durable.

**Physiologic effect**

1. Promotes increase in circulating white blood cells.
2. Increases blood flow to the skin, thereby relieving internal congestion.
3. Relieves muscle spasm by increasing circulation and releasing muscle tension.
4. Relieves pain in muscles and joints by counter-irritation and de congestion.
5. Reflexly relieves pain from internal organs.
6. Increases elimination by promoting sweating
7. Stimulates or sedates according to the temperature of the application.

**Indications**

1. Joint pain
2. Neuralgia and Neuritis pain
3. Muscle tension
4. Insomnia
5. To warm the tissues in preparation for massage.
6. To prepare for cold procedures.

**Contra indications and cautions**

1. Loss of skin sensation due to unconsciousness paralysis of the part legs and feet of diabetic
2. Leg or feet oedema, varicose veins, advanced vascular disease.
3. Malignancy
4. Tendency to bleed (haemorrhage)
5. Stomach or bowel ulcers.
6. Omit cold in extreme pain such as pleurisy, Renal colic and dysmenorrhoea.

**ஒற்றடம்(Fomentation)**

மருந்து பொருட்களை வறுத்து துணியில் முடிந்து நோயுள்ள இடங்களில் ஒற்றுதல்.

It is also one of the 32 external theraphies of siddha medicine by application of hot medicated packs.

The medicated pouches are made up of leaves that contains.

- Pelonex elata (வாத நாராயணன் இலை)
- Tamarindus indicus (புளியிலை)
- Vitex negundo (நொச்சி)
- Cleodendrum phlomoidis (தழுதாழை)

**Uses**

Increases blood circulation and reduces pain.

**NIRAIVU:**

By promoting the awareness about the dietary, seasonal, emotional influence on the disease assurance from disease recovery was given. Life-style modification was also advised to them.

**KAAPU:**

Knowing the cause there by removing it and thus preventing the disease is the main aim of Siddha system of medicine. Siddha system emphasizes the purification of thought and activities as mentioned in the siddha text "Theraiyar Pinianuga Vithi" which emphasizes virtueness to be followed even in the daily life activities.

**DIETARY ADVICE:**

In Siddha system of medicine the importance of dietary habits have been emphasized for the management of diseases and its prevention in a effective manner.

"கடுகு நற்றிலத் தெண்ணெய் கூழ்பாண்டங்கள்
வடுவ தாயே தெண்ணெய் கூழ்பாண்டங்கள் கடலை
மடிவி லாதவெள்ளுள்ளிகொள் புகையிலை மதுபென்
இடறு பாகலோ டகத்தி நீக்கிடலிச் சாபத்தியம்"

- சித்த மருத்துவாங்க சுருக்கம்

During the course of treatment, the patients were advised to follow certain diet regimen (Icha pathiyam) which is mentioned for vatha diseases.

1. Kadugu - Brassica nigra (Mustard seed)
2. Ell Nei - Gingelly oil
3. Poosanikkai - Bennicasa hispida
4. Kadalai - Arachis hypogea
5. Thengai - Coccus nucifera
6. Maangai - Mangifera indica
7. Poondu - Allium sativum
8. Pala - Artocarpus heterophyllus
9. Kollu - Horse gram
10. Pugaiyilai - Nicotiana tobaccum
11. Pagal-- Momordica charantia
12. Agathi - Sesbania grandiflora
13. Sour taste
14. Astringent taste
15. To maintain three vital humours in equilibrium one should take food cooked with:
16. Pepper - Piper nigram
17. Turmeric - Curcuma longa
18. Cumin seeds - Cuminum cyminum
19. Asafoetida - Ferula asafoetida
20. Dry ginger - Zingiber officinalel
21. Cardamom- Elettaria cardamomum
22. Fenugreek - Trigonella foneum
23. Garlic - Allium sativum

**Substances advised for vatha diseases are**

"செங்கழுநீர் கோடைத் தேன் மிளகு நல்லெண்ணை
தங்கு பெருங்காயத் தழுதாழை - எங்கெங்கும்
கட்டு சிறு முத்து நெய் கோதில் உளுந்துவைகள்
வாட்டு மணிலக்கை மதி" - ப.கு.சி

Honey collected during summer

| | | |
|---|---|---|
| Pepper | - | Piper nigram |
| Gingelly oil | - | Sesamum indicum |
| Asafoetida | - | Ferula asafoetida |
| Castor oil | - | Riccinus communis |
| Black gram | - | Vigna mungo |
| Garlic | - | Allium sativum |

**சேர்க்கக் கூடிய உணவுகள்: (Diet to be included)**

**காய்கள் (Vegetables):**

| | | |
|---|---|---|
| கத்தரிப்பிஞ்சு | - | Unripe brinjal |
| முருங்கைப் பிஞ்சு | - | Unripe drumstick |
| அவரைப்பிஞ்சு | - | Unripe broadbeans |

**கீரைகள் (Greens):**

| | | |
|---|---|---|
| பொன்னாங்கண்ணி | - | Alternanthera sessilis |
| மூக்கிரட்டை | - | Boerhaavia diffusa |
| தூதுவேளை | - | Solanum trilobatum |
| முருங்கைக்கீரை | - | Moringa oleifera |
| கறிவேப்பிலை | - | Murraya koenigii |
| முடக்கறுத்தான் | - | Cardiospermum halicacabum |
| அறுகீரை | - | Amaranthus tristis |
| கரிசாலை | - | Eclipta prostrate |

**பழங்கள் (Fruits):**

| | | |
|---|---|---|
| மாதுளை | - | Pomegranate |
| ஆப்பிள் | - | Apple |
| பப்பாளி | - | Papaya |
| ஆரஞ்சு | - | Orange |
| பேரீச்சை | - | Dates |
| அத்தி | - | Figs |
| நாவல் | - | Syzygium cumini |

**அசைவம் (Non-Vegetarian diet):**

| | | |
|---|---|---|
| வெள்ளாட்டுக்கறி | - | Meat |
| காடை | - | Quail |
| சிறு இறால்மீன் | - | Prawn |

ஒற்றடம்

## MODERN ASPECT

**Joint**

The Place of Union or Junction between two or more bones of the skeleton especially a junction that admits more or less motion of one or more bones is termed as a Joint.

**Classification:**

- Immovable - Skull type of Joints.
- Slightly movable – Vertebral type of Joints.
- Highly Movable – Limb type of Joints.

**Immovable Joint:**

They are Classified according to the type of tissue found between the articulating bones.

Sutures – Found between membrane bones.

Synchondrosis – Found between Cartilagenous bones.

**Sutures:**

In between two bones there is a membrane. The membrane persists even in adult life.

(E. g) Coronal Suture. Sagital Suture etc.

**Synchondrosis:**

A layer of Cartilage is found inbetween the articulation bones. Thes bones are embryologically developed as cartilaginous bones.

(E.g) Spheno occipital synchondrosis,

Spheno Ethmoidal Synchondrosis.

**Synostosis:**

Suture or synchondrosis ossify the joint disappears.

**Slightly Movable Joints:**

Vertebral type of Joints (Amphiarthrosis). They are the Cartilagenous Joints. They are Slightly movable Joints.

They are classified in to the following types

- Primary Cartilagenous Joint
- Secondary cartilaginous joint

**Primary Cartilagenous Joints:**

They are temporary cartilaginous joints. The cartilage disappears after some years of life.so they are temporary cartilaginous joints. (e.g) Joints found between the diaphysis and epiphysis of the long bones.

**Secondary cartilaginous Joints:**

They are classified into the following types.

- Symphysis
- Syndesmosis

**Symphysis:**

A Symphysis is a Joint, Where the articular Surfaces are covered by hyaline Cartilage. Ligaments unite the bones. Joint Cavity is absent.

**Syndesmosis:**

- The articulating bones are kept at a distance but united by Strong ligaments.

**Synovial Joints (Limb type of Joints):**

- They are highly movable Joints. The articulating Surfaces are covered by the articular hyaline cartilage. The bones are held together by a fibrous capsule. This capsule is thickened to form collateral ligaments. The Inner surface of the capsule is lined by a silky synovial membrane.

**Synovial Membrane:**

Synovial membrane lines non- articular areas in synovial joints, bursae and tendon sheath, all regions where movements occurs between opposal surfaces, which are lubricated by a fluid superficially like egg albumin secreted and absorbed by the membrane.

**Synovial fluid**

- It is a clear, viscous, pale yellow fluid with a specific gravity of 1008 to 1015, which fills the synovial cavity. It is a dialysate of the blood plasma with mucin and hyaluronic acid added to it as secretions from the synovial cells. The main functions of the synovial fluid are lubrication and nourishment of the articular cartilage.
- Analysis of the synovial fluid is helpful in diagnosing various types of arthritis by changes in its viscosity, cell content and biochemical features.

## Classification of Joint diseases

## (Textbook of Orthopaedic & Traumatology – Natarajan)

**1.INFECTIVE ARTHRITIS:**

Bacterial, viral and parasitic:

a) Acute infection

- Acute pyogenic arthritis
- Acute gonococcal arthritis
- Acute rheumatic arthritis
- Small pox arthritis

b) Chronic infections

- Nonspecific : pyogenic arthritis
- Specific : tuberculous arthritis
  - Syphilitic arthritis
  - Gonococcal arthritis
- Parasitic : guinea worm arthritis

**2. RHEUMATOID ARTHROPATHY:**

a) Rheumatoid Arthritis:

- Rheumatoid Arthritis (Adult)
- Juvenile Rheumatoid Arthritis (JRA)

b) Sero Negative SpondyloArthropathy:

- Ankylosing spondylitis
- Reiter's Disease
- Psoriatic arthritis
- Enteropathic Arthritis

**3. DEGENERATIVE ARTHRITIS**:

- Osteoarthritis
  - Primary Osteoarthritis
  - Secondary Osteoarthritis

**4. NEUROPATHIC ARTHROPATHY:**

- Tables – charcot's Arthropathy
- Syringomyelia
- Leprosy
- Diabetes Mellitus

**5. METABOLIC ARTHRITIS**:

- Gout
- Alkaptonuric Arthritis

**6. ARTHRITIS IN SYSTEMIC DISORDER:**

- Allergic arthritis
- Haemophilic Arthritis

**7. MISCELLANEOUS JOINT:**

- Villo – Nodular synovitis
- Synovial Chondromatosis

**8. HYSTERICAL JOINT**

**Polyarthritis:**

Any arthritis that affects five or more Joints. Arthritis is a Medical term for Joint arthritis. It is caused by Autoimmune conditions such as rheumatoid arthritis, psoriatic arthritis and systemic lupus erythematous.

**PATHOLOGY:**

Arthritis is the inflammation of all the component structures of the joint with involvement of the synovium, articular surfaces and capsule.

The following stages can be identified:

- Stage of synovitis
- Stage of reversible arthritis
- Stage of irreversible arthritis
- Stage of ankylosis
- The critical stage of the disease is the involvement and destruction of the articular cartilage, as any gross damage to the cartilage is irreversible leading to ankylosis and loss of function.

**Symptoms of Polyarthritis:**

- Swelling
- Redness
- Warmth
- Bogginess of Joint
- Deformation
- Extra articular manifestations(lung)
- Blood Vessel and eye symptoms

**Polyarthritis:**

- Polyarthritis is involvement of five or more joints or joint groups.in determining the cause it is helpful to consider whether the polyarthritis:
- Is symmetrical (approximately) or asymmetrical
- Shows predominant or equal involvement for upper and lower limbs.
- Shows predominant or equal involvement for large and small joints.
- Has accompanying peri articular involvement.
- Has accompanying extra articular features as clue to the diagnosis.
- A large number of viral infections may cause arthralgia (joint pain with no abnormal examination findings) and rapid onset of an acute symmetrical inflammatory polyarthritis affecting small and large joints of upper and lower limbs that is usually self limiting within six weeks.
- These include parvovirus B19, hepatitis Band C, mumps, Rubella, Chickenpox and infectious mononucleosis.
- The rapidility of onset, the presence of fever and the characteristic rash usually suggest the diagnosis.
- A definitive diagnosis may be difficult in the first few months of onset but often becomes firmer as more characteristic features develop with time. However, certain patterns are characteristic and may be present at or soon after presentation.
- **Polyarthritis of the finger:**

  Polyarticular OA may be confused with other disorders which affect the finger joints. close observation slows several distinguishing features. Nodal OA affects predominantly the distal joint, rheumatoid arthritis the proximal joints, psoariatic arthritis in a purely destructive arthropathy and there no interphalangeal nodes. tophaceous gout may cause knobby fingers, but the knobs are tophi, not osteophytes. X-rays will show difference.

**Characteristics of inflammatory joint disorders:**

1.significant early morning stiffness >30 minutes.

2.pain aggravation on resting the joints.

3.symptomatic improvement on gentle use of joints.

4.spontaneous flares (up –and –down course) are common.

5. constitutional symptoms- fatigue, loss of appetite, weight loss, low grade fever, night sweats are very often present.

6. Increased acute phase reactants e g. high ESR and CRF.

In non –inflammatory disorders, from 1 to6, respectively they are <30 minutes, pain on moving the joint.

| **Examples of extra articular features that associate with inflammatory oligo or polyarthritis** | |
|---|---|
| **Clinical Features** | **Disease Association** |
| **Skin, nails and mucous membrane**<br>Psoriasis, nail pitting and dystrophy.<br>Raynaud's<br>Photosensitivity<br>Splinter haemorrhages, nail fold infracts.<br>Oral ulcers<br>Large nodules (mainly extensor surfaces)<br>Clubbing | <br>Psoriatic arthritis<br>Lupus, scleroderma<br>Vasculitis<br>Lupus, reactive Arthriris<br>Rheumatoid Arthritris, Gout<br>Enteropathic arthritis, Metastatic lung cancer, Endocarditis. |
| **Eye**<br>Uveitis<br>Conjunctivitis<br>Episcleritis, Scleritis | <br>Seronegative spondyloarthritis<br>Reactive arthritis<br>Rheumatoid arthritis, Vasculitis. |
| **Heart, Lung**<br>Pleuro – Pericarditis<br>Fibrosing alveolitis | <br>Lupus, Rheumatoid Arthritis<br>Rheumatoid Arthritis, lupus, other connective tissue disease. |
| **Abdominal organs**<br>Hepato splenomegaly<br>Haematuria, proteinuria, urethritis. | Rheumatoid Arthritis,<br>Lupus, vasculitis scleroderma<br>Reactive Arthritis |
| **Fever, lymphadenopathy** | Infection, Systemic Juvenile Idiopathic Arthritis |

| Causes of poly arthritis | |
|---|---|
| **Cause** | **characteristics** |
| **Non inflammatory**<br>• Generalised osteoarthritis<br>• Haemochromatosis<br>• Acromegalic arthropathy | • Very common, symmetrical, small and large joints, Heberden's nodes, only a few joints, symptomatic at any one time.<br>• Rare, small and large joints<br>• Rare, mainly large joints, spine. |
| **Inflammatory**<br>• Viral hepatitis<br>• Rheumatoid arthritis<br>• Seronegative spondyloarthritis<br>✓ Psoriasis<br>✓ Reactive<br>✓ Ankylosis spondylitis<br>✓ Enteropathic arthropathy<br>• Lupus<br>• Chronic gout<br>• Juvenile idiopathic arthritis<br>• Chronic sarcoidosis<br>• Scleroderma &poly myositis<br>• Hypertrophic osteoarthropathy | • Very acute, self-limiting<br>• Symmetrical, small and large joints, upper and lower limbs.<br>• Asymmetrical. Large > small joints, lower >upper limbs, spondylitis.<br>• Symmetrical. Small > large joints, joint damage uncommon.<br>• Distal Proximal joints, proceeded by acute attacks.<br>• Symmetrical, small and large joints, upper and lower limbs.<br>• Symmetrical, small and large joints.<br>• Rare, small and large joints.<br>• Rare, large >small joints, clubbing. |

Arthritis may present as acute monoarthritis, aute polyarthritis, chronic monoarthritis and chronic polyarthritis.

**Acute monoarthritis**

Differential diagnosis of acute monoarthritis includes trauma, septic arthritis , crystal arthropathy (gout ,pseudogout), haemophilic arthropathy, monoarticular onset of chronic inflammatory polyarthritis. In the hip joint, transient synovitis, perthe's disease and psoas abscess should be considered. In the knee prepatellar bursitis should be excluded.

**Chronic monoarthritis**

Causes of chronic monoarthritis include osteoarthritis, tuberculosis, brucellosis, pigmented villonodular synovitis, synovial chondromatosis, initial presentation of chronic polyarthritis, monoarticular rheumatoid arthritis or juvenile chronic arthritis, malignancy and neuropathic joint, causes of neuropathic joint include tabes dorsalis, syringomyelia, leprosy, diabetes mellitus, myelomeningocele, congenital insensitivity to pain and iatrogenic (repeated steroid injections).

**Acute polyarthritis**

Acute polyarthritis includes reactive arthritis (classical and non - classical) and acute onset of chronic inflammatory polyarthritis. In classical reactive arthritis, there is gastrointestinal or genitourinary infection initially. Arthritis follows infection a month later. lower limb joints are involved. Sacroiliac joint involvement are common. patient is usually HLA B27 positive. If eyes are involved (conjunctivitis), reiter's syndrome, oral ulcers are not painful. Scleritis, cavitary nodules on chest X-ray, sinusitis and haematuria should make the clinician suspect wegener's granulomatosis (scleritis is not common in rheumatoid arthritis). In non-classical reactive arthritis, there is no history of preceding infection. Other causes of acute polyarthritis include acute rheumatic fever, polyarthritis following viral infections and polyarticular septic arthritis.

**Chronic polyarthritis**

Polyarticular asymmetrical arthritis is typically seen in sero-negative spondyloarthropathies (ankylosing spondylitis, psoriatic arthritis).

Causes of polyarticular symmetrical arthritis include rheumatoid arthritis, connective tissue disorders (systemic lupus erythematous, systemic sclerosis, polymyositis and dermatomyositis, CREST syndrome ,vasculitis, anti- phospholipid syndrome, polymyalgia rheumatica/giant cell arteritis, etc.),osteoarthritis

,polyarticular gout, pseudogout, arthritis associated with systemic diseases (bacterial endocarditis, HIV infection , endocrine and metabolic disease).

Features suggestive of systemic vasculitis are rash with purpura, peripheral neuropathy, glomerulonephritis and evidence of regional ischaemia such as vasculitis are rash with purpura, peripheral neuropathy, glomerulonephritis and evidence of regional ischaemia such as vasculitic ulcers. SLE commonly presents as fever, malar rash, alopecia, arthritis and oral ulcers. Anti-phospholipid syndrome presents with recurrent venous and /or arterial thrombosis, recurrent fetal loss usually at around 10 weeks on gestation, thrombocytopenia and/or hemolytic anemia. APS can occur secondary to SLE also. In fact, it was first described in patients with SLE. The characteristic serum markers for APS are family of autoantibodies reactive against different anionic phospholipid required in the formation of prothrombin activator complex of the blood coagulation cascade. The antibodies include the anticardiolipin antibody, lupus anticoagulant, etc.

The initial symptom of systemic sclerosis (scleroderma) is usullay raynaud's phenomenon with or without puffiness of fingers. This may be accompanied by fatigue, early morning stiffness and arthralgia. The tight skin typical of scleroderma may take years to develop. D- penicillamine is the mostly used drug in scleroderma. For severe Raynaud's phenomenon, vasodilator drugs such as nifedipine or prazosin are used.

**Degenerative joint disease or Osteoarthritis:**

Degenerative joint disease or Osteoarthritis is a disorder characterized by progressive detoriation and loss of articular hyaline cartilage accompanied by proliferation of new bone and soft tissue in and around the involved joint.

They are classified into,

- Primary (Idiopathic) OA
- Secondary OA
- Erosive OA

**Pathology:**

Osteoarthritis is also called degenerative joint disease. It is the most common type of joint disease. It is characterized by the progressive erosion of articular cartilage. The term OA implies a role for inflammation in its pathogenesis, OA is now Considered to be a disease of cartilage, in which intrinsic biochemical and metabolic alterations result in its breakdown.

**Cardinal Features are**

1. Progressive cartilage destruction
2. Subarticular cyst formation
3. Sclerosis of the surrounding bone
4. Osteophyte formation
5. Capsular fibrosis

Frequently the condition is initiated as chondromalacia patellae (chondromalacia – Cartilage softening). Due to Continous friction, the joint surface of patella femoral joint is eroded and degenerated.

The cartilage and pericondrium around the periphery of joint are stimulated which leads to elevation of non -articular surface of joint above the remaining surface and later on projects circumferentially to give **'Lipping'** appearance.

Outward cartilage growth, followed by ossification and local periosteal new bone formation mainly around the capsular attachments, leads to '**Osteophyte Lipping**'.

Inflammation and metaplasia of synovial membrane occurs later on. Detached flakes of cartilage and metaplastic synovium give rise to cartilaginous and osteo cartilaginous **'Loose Bodies'**.

**Cause of joint pain in patients with osteoarthritis:**

| Source | Mechanism |
|---|---|
| Synovium | Inflammation |
| Subchondral bone | Medullary hypertension, micro filaments |
| Osteophyte | Stretching of Periosteal nerve endings. |
| Ligaments | Stretch |
| Capsule | Inflammation, distention |
| Muscle | Spasm |

**Acromegalic arthropathy:**

Acromegalic arthropathy Mainly affecting knees, hips and shoulders with non-inflammatory usage pain and coarse crepitus, suggesting osteoarthritis, but normal or increased not restricted) movement. Radiographic Signs may include widening of joint spaces, squaring of bone ends, generalized osteopenia and tufting of terminal phalanges.

**Viral arthritis:**

Most forms of viral arthritis are self-limiting. The usual presentation is with acute polyarthritis, fever, rash. Parvovirus arthropathy is the most common and unlike children, adults may not have the characteristic facial rash. Diagnosis is confirmed by a rise in specific IgM. Polyarthritis may also rarely occur with hepatitis B and C, Rubella and HIV infection.

**Rheumatoid Arthritis:**

**Definition:**

"Rheumatoid Arthritis is a symmetrical, destructive and deforming polyarthritis affecting small and large synovial joints with associated systemic disturbance, variety of extra – articular features and the presence of circulating antiglobulin antibodies (Rheumatoid Factors)"

**Epidemiology:**

Rheumatoid arthritis occurs throughout the world. The prevalence of Rheumatoid arthritis is approximately 1% of the population.

Women are affected approximately 3 times more often than men.

**Aetiology:**

Definite cause is unknown, Host – genetic factors.

It may be familial. Rheumatoid arthritis is found at approximately 4 times the expected rate in first degree of individuals with seropositive disease.

**Pathology:**

The condition is Widespread but the brunt of the attack falls on synovium. The characteristic feature is a chronic inflammation as in constant but pathogenic lesion is the rheumatoid nodule.

The pathological changes, if unchanged proceed in three stages.

Stage I – Synovitis

Stage II – Destruction

Stage III – Deformity

Clinical manifestation:

Articular manifestation

Extra - Articular manifestation

**Involvement of Individual joints**:

**Hand and Wrist:**

Swan neck deformity

Button hole deformity

Z deformity

Palmar erythema is also common.

Raynaud's Phenomenon may occur in the early stage.

**Feet and ankles**

Active synovitis in the metatarsophalangeal joint can produce pain and tenderness best elicited by the lateral squeezing of the joints.

The synovial swelling of the active disease together with destruction of the ligament between the metatarsal heads may broaden the forefoot and seperate the toes to produce the **"day light sign"**

In the hind foot calcaneal erosions, hallux – valgus deformity are found. Rheumatoid synovitis may develop in the subtaloid and midtarsal joints. Chronic arthritis in this region can leads to **'Pes Plano – valgus deformity'**

**Knee joints:**

Knee joint is commonly involved with synovial hypertrophy, chronic effusion and frequently ligamentous laxity. Pain and swelling behind the knee may be caused by extension of inflamed synovium into the popliteal space **(Baker's cyst).**

**Elbow and shoulder joint:**

Inflammed olecranon bursae and Rheumatoid nodules around the elbow are common but true rheumatoid arthritis affecting the elbow is less common. Severe destructive changes can occur leading to **"Fixed flexion deformity"**

**Extra Articular Manifestation:**

General:

- Low grade fever
- Lymphadenopathy
- Weight loss
- Anorexia
- Anemia
- Lassitude
- Rheumatoid nodules
- Vasculitis

- ❖ Pulmonary manifestation
- ❖ Cardio vascular manifestation
- ❖ Haematological manifestation
- ❖ Neuromuscular manifestation
- ❖ Muscular changes
- ❖ Ocular manifestation

**Sero negative spondyloarthropathy:**

Sero negative spondyloarthropathy includes the following rheumatoid like conditions where the serum is negative from rheumatoid factor. They are

- o Ankylosis spondylitis
- o Reactivbe arthritis, including reiters syndrome
- o Psoriatic arthritis
- o Enteropathic arthritis

**Ankylosis spondylitis:**

Ankylosing spondylitis is the chronic, progressive and crippling disease affect in spine. The exact etiology is unknown. Ankylosing spondylitis have been found to be more prevalent in certain races and hence shows a genetic predisposition.

**Psoriatic arthritis:**

Psoriatic arthritis is a polyarthritis seen in about 10% of the patient with psoriasis. The most common type a) is the one involving the distal interphalangeal joints of the hands and feet with psoriatic nail changes. b) arthritis mutilans is a severe form where there is marked destruction of the joints. c) symmetrical polyarthritic type. D) oligoarthritic type. E) spondyloarthritic type.

**Enteropathic arthritis:**

Chronic inflammatory bowel diseases like regional enteritis (Ocohn's disease) and ulcerative colitis are associated with arthritic lesions in about 10% of cases. There is a pheripheral polyarthritis or involvement of the spine, the joint condition shows remissions and exacerbation along with the activity of underlying bowel disease.

**Reiters disease**

It is characterized by a triad of sero negative oligoarthritis, conjunctivitis and non specific urethritis. Arthritis occurring alone following sexual exposure or enteric infection is known as reactive arthritis.

**Haemophilic arthritis**

Haemophilia is a disease characterized by a bleeding diathesis due to a defect in the clotting mechanism of the blood. It is a hereditary disease affecting males but transmitted through the females. Joints usually involved are knees, ankles, elbow and hip.

**Physical therapy**

Physio therapy is the application of physical agents and principles to pathological conditions for the purpose of producing therapeutic effects.

In polyarthritis, exercise therapy is extensively used to prevent deformitis and mobilise the stiff joints. early movement will prevent muscle from degeneration and the joints the becoming weekend and stiff.

Active exercise is given to mobilise joints, strengthen muscle, improve coordination or balance.

**Types of Exercise:**

**1.Range of Motion Exercises / Stretching Exercises:**

Stretching Exercise involve moving a joint as it will comfortably go through its full range of motion or stretch. This exercise helps to maintain normal joint movement or restore movement that has been last.

**Clinical Assesment of joint Motion:**

The most widely used and recommended instrument is the universal Goniometer, sometimes called as Arthrometer. Basically, it is a protractor to the centre of which two long slender arms or levers are attached. Usually only one of the arms is movable but many variations in design are possible.

**2.Strengthening Exercise:**

Strengthening Exercise helps to maintain or increase the strength and power of muscles.

**3.Limbering up Exercises:**

It helps to reduce morning stiffness after staying in one position too long by doing the range of motion exercises each day only a few times to loosen up.

**Details of Range of Motion Exercises:**

**Upper Extremities:**

**Shoulder:**

Arms at side with elbow straight, bring arms forward – Upward by Ear.

Arms at side with elbow straight, take arms sideward – Upwar overhead.

Arms at side bend elbow to right angle and take hands apart.

**Elbow:**

Bend elbow, touching fingers to top of shoulder.

Straighten Elbow.

**Forearm:**

Elbows bent, turn palm of the hand and then back of the hand towards the face.

**Wrist:**

Keeping forearm steady, move the wrist up and down as in waving.

Again hold forearm steady, move the wrist up and down as in hand shaking.

Make circle with hands.

**Hand and fingers:**

Make tight fist.

Open fingers as wide as possible.

With the hand open spread fingers away from each other and then together.

Touch tip of the thumb to the tip of the each fingers.

Bend the thumb in toward palm of the hand.

**LOWER EXTREMITIES:**

**Knee:**

Sit with your feet off the floor. Lift the leg and then allow it to return to the bent position slowly.

**Ankle:**

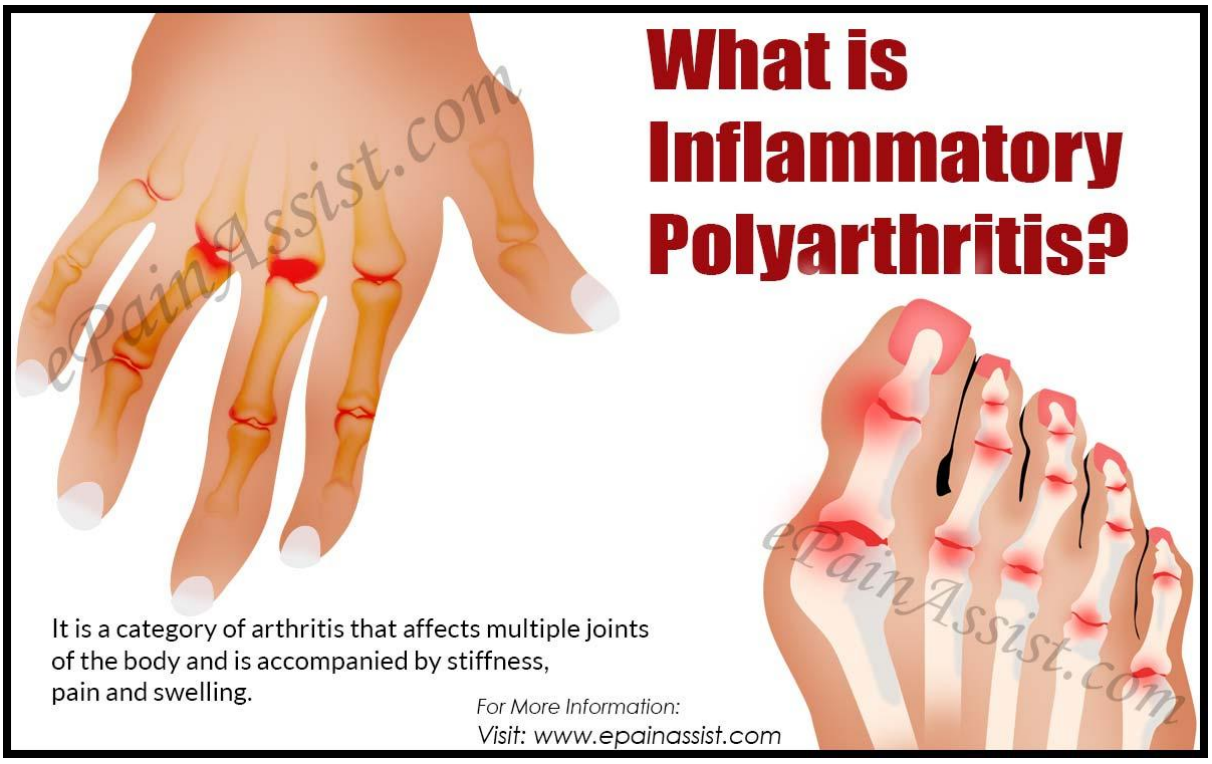
Pull foot up and in, then push back down.

Make circle with foot.

Pull foot in toward other foot.

Pull foot to outside.

**POLYARTHRITIS**



## MATERIALS AND METHODS

The Clinical study on Santhuvatham was carried out in the Post graduate Sirappu Maruthuvam department of Govt Siddha Medical College, Palayamkottai. In this study 40 patients (who satisfy the inclusion criteria and exclusion criteria) were treated as OP and IP patients. The clinical trial was approved by the Institutional Ethics Committee (IEC), Government Siddha Medical College, Palayamkottai.

**SAMPLE SIZE:**

40 patients (OPD & IP)

**STUDY DESIGN & CONDUCT OF STUDY:**

Study type: prospective open labelled phase II clinical observation criteria based study.

Study Place: OPD & IPD of Government Siddha medical College& hospital, Palayamkottai.

Study Period: 18 Months

Sample Size: 40 Patients (OPD & IPD).

**INCLUSION CRITERIA:**

- Age : between 20- 60 years
- Sex : Both male and female
- Joints pain : more than 5 joints
    - Swelling
    - Stiffness
    - Restricted movements in affected joint.
    - Willing for admission and study in IPD for 40 days or willing to attend OPD

**EXCLUSION CRITERIA:**

- Rheumatic Fever
- Rheumatoid arthritis
- Other systemic illness
- Gout
- Malignancy
- Use of narcotic drugs
- Pregnancy and Lactation
- Tuberculosis

**WITHDRAWAL CRITERIA:**

- ✓ Intolerance to the drug and development of adverse reactions during drug trial.
- ✓ Poor patient's compliance and defaulters.
- ✓ Patient turned unwilling to continue in the course of clinical trial.
- ✓ Occurrence of any serious illness.

**TESTS AND ASSESMENTS:**

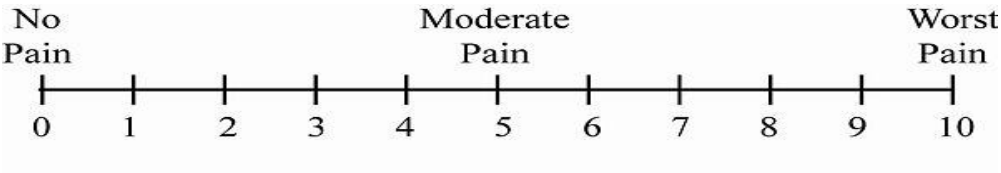
- Clinical assessment
- Routine investigations
- Specific investigation
- Radiological investigations
- Siddha investigations

**CLINICAL ASSESSMENT:**

- Pain in more than five joints
- Tenderness, Numbness
- Stiffness
- Restriction of movements of affected joints
- Effect of treatment will be evaluated on the basis of changes in the signs and symptoms after the treatment.

**PAIN ASSESSMENT**

**UNIVERSAL PAIN ASSESSMENT SCALE**




A.0 : No Pain

B. 1-3 : Mild pain

C.4-6 : Moderate pain

D.7-10 : Severe pain

Reference: Clinical Manual for Nursing Practice. (National Institute of Heatlth Warren Grant Magnuson Clinical center

**GRADATION:**

Grade 1: Fit for all activities to do their work without support (Normal)

Grade 2: Mild Pain and Mild restriction of Movements

Grade 3: Moderate Pain and Moderate restriction of Movements

Grade 4: Severe Pain and Severe restriction of Movement

**Investigations**

The symptoms of santhuvatham were more or less correlated with polyarthritic conditions of Rheumatological and collagen diseases in modern medicine. investigations meant for such diseases were done for santhuvatham. Some of these are routine blood tests, urine tests, stool examination and specific tests such as rheumatoid arthritis factor, radiographic evaluation etc. Besides this blood sugar, blood urea, serum cholesterol also investigated. The diagnosis was made by following Siddha diagnostic methods: Nilam, Kalam, Poriyalaridhal, Pulanalarithal, Vinaadhal, Mukkutra Nilaigal, UdalThathukal Nilai and EnvagaiThervugal and the diagnosis of Santhuvatham were obtained which correlated with modern diagnosis of Polyarthritis by the XRay findings.

**INVESTIGATION:**

The following investigations were done in all selected patients in the laboratory of Government Siddha Medical College, Palayamkottai.

**BLOOD:**

TC (Cells/cumm)

DC P L E M N

ESR ½ hr 1hr

Hb g%

**Blood Sugar:**

Fasting

Post prandial

**Renal function tests:**

Blood urea

Blood uric acid

Serum creatinine

**Serology:**

C-reactive protein

RA factor

ASO titre

**Urine examination:**

Albumin

Sugar

Deposits.

**RADIOLOGICAL INVESTIGATIONS:**

X-Ray of affected jonts (AP and Lateral view).

**TREATMENT:**

“tpNurdj;jhy; thje; jhOk;”

Vellaiennai 15ml at morning with hot water was given on the first day of treatment.

**INTERNAL;**

Drug: sarvangavatha chooranam

**REFERENCE:**

Sigicharathna deebam part 2 Vaithiya sinthamani, pg.no-164, Dose:800-1000 mg (Three times) per day

**ADJUVANT:**

Hot water

**DURATION:**

30 to 40 days.

**EXTERNALDRUG:**

Mukkutu Yennai

**REFERENCE:**

Varma marundhu seimuraigal (pg:no:374)

**OTTRADAM**

**DRUG:**

Notchi elai ottradam

**REFERENCE:**

Thanjai vaithiya raja sindhamani (pg:no:11)

## OBSERVATION AND RESULTS

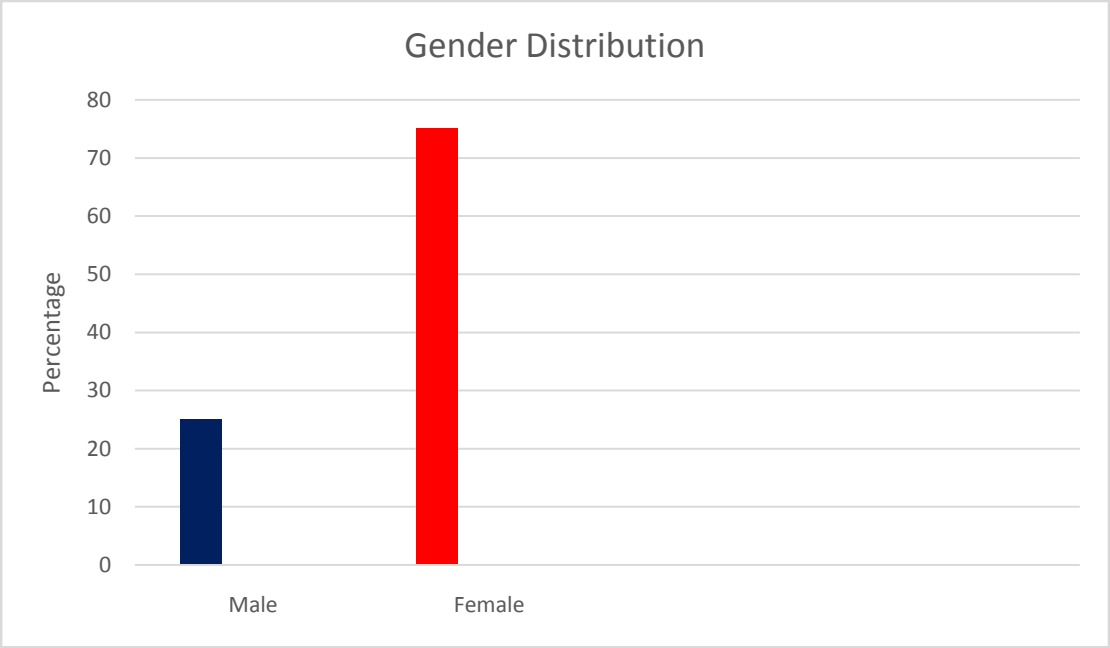
For the clinical study 40 patients were selected and treated in PG-III Sirappu Maruthuvam Department, GSMC hospital, Palayamkottai. Results were observed with respect to the following criteria.

1. Gender distribution
2. Age distribution
3. Kalam
4. Paruvakalam
5. Gunam
6. Thinai
7. Socioeconomic factors
8. Etiological factors
9. Occupation
10. Disturbance in vatha
11. Disturbance in pitha
12. Disturbance in kapha
13. Udal thathukkal
14. Envagai thervu
15. Naadi
16. Neikuri
17. Distribution of illness
18. Clinical manifestation
19. Locomotor system
20. Incidence of individual joint involvement
21. Effect of Theraphy

**Table 1**

**GENDER DISTRIBUTION**

| S. No | Gender | No. Of Cases | Percentage (%) |
|---|---|---|---|
| 1. | Male | 10 | 25 |
| 2. | Female | 30 | 75 |



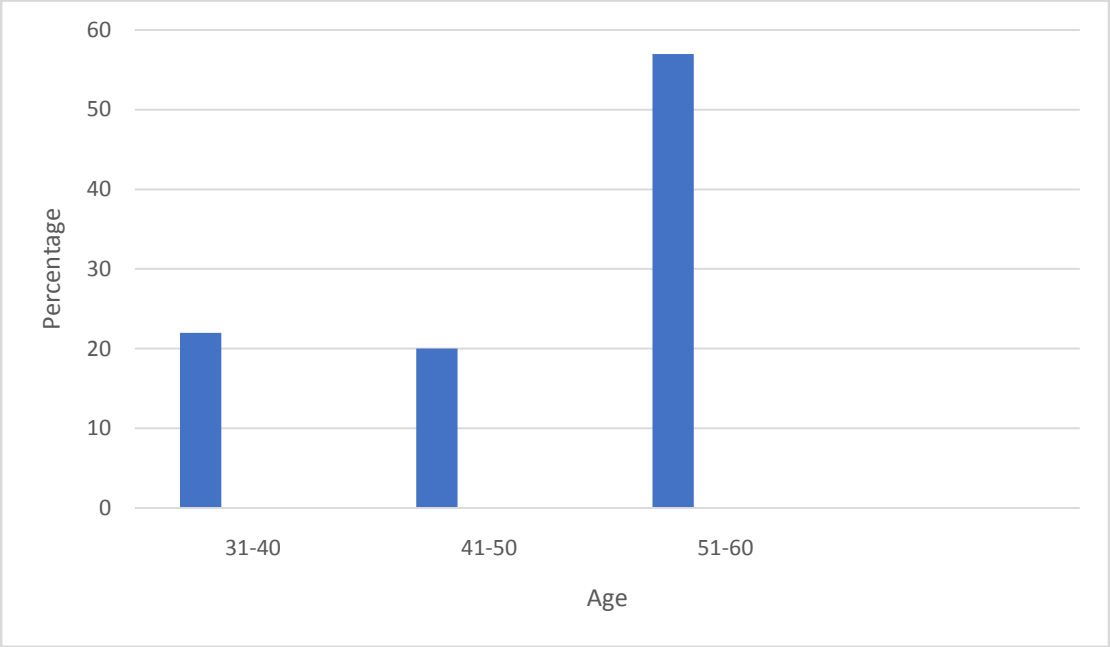

**Inference**

- Out of 40 patients 25% were male 75% were female.

**Table 2**

**AGE DISTRIBUTION**

| S.No | Age | No.of Cases | Percentage (%) |
|---|---|---|---|
| 1. | 31-40 | 9 | 22.5 |
| 2. | 41-50 | 8 | 20 |
| 3. | 51-60 | 23 | 57.5 |




**Inference**

Among 40 patients

22.5% of cases were observed in the age group 31-40 years

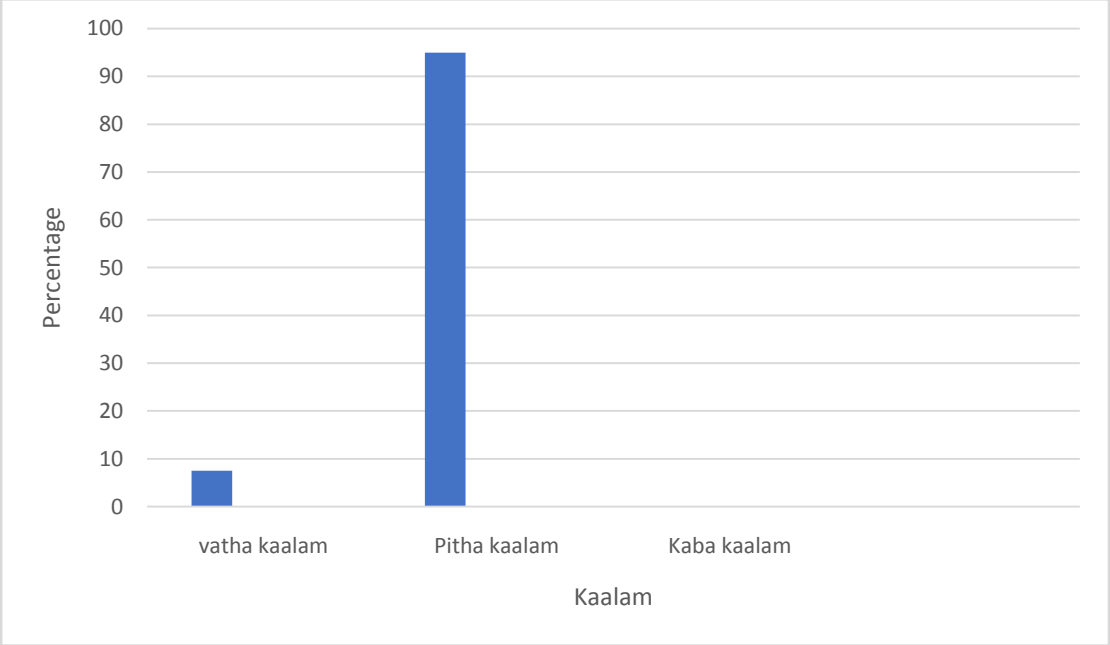
20% of cases were observed in the age group 41-50 years

57.5% of cases were observed in the age group 51-60 years

**Table 3**

**KAALAM (LIFE SPAN)**

| S.NO. | KAALAM | NO OF CASES | PERCENTAGE |
|---|---|---|---|
| 1 | Vatha Kaalam (upto 33 years) | 3 | 7.5 |
| 2 | Pitha Kaalam (34-66 years) | 38 | 95 |
| 3 | Kaba Kaalam (above 67 years) | 0 | 0 |



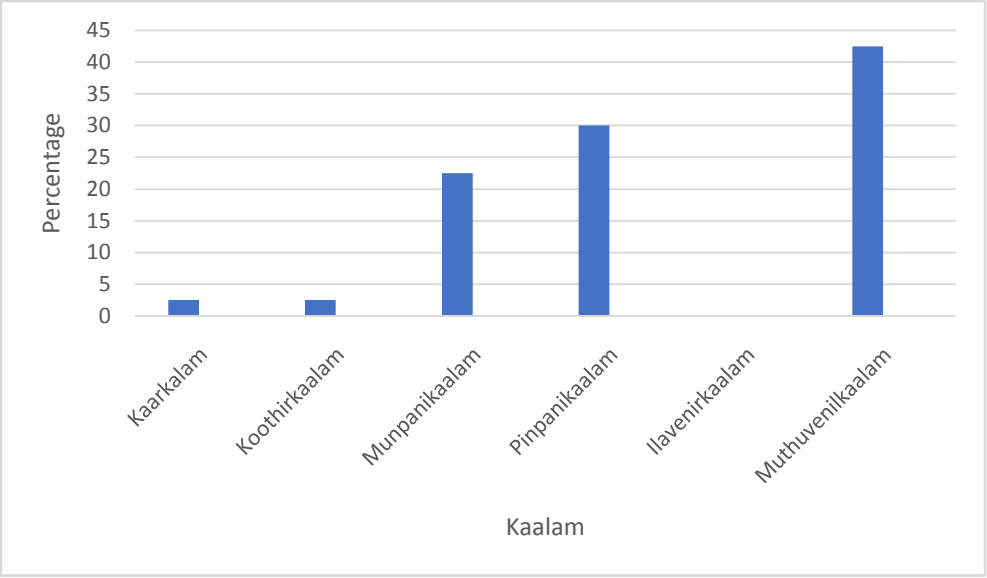

**Inference**

Out of 40 patients 7.5% of cases were in Vatha Kaalam, 100% of cases were in the Pithakaalam

**Table 4 :**

**PARUVAKAALAM**

| S.NO. | SEASON | NO OF CASES | PERCENTAGE % |
|---|---|---|---|
| 1 | Kaarkaalam - Aavani, Purattasi (15 Aug - 14 Oct) | 1 | 2.5 |
| 2 | Koothirkaalam - Iyppasi, Karthigai (15 Oct - 14 Dec) | 1 | 2.5 |
| 3 | Mupanikaalam - Markazhi, thai (15 Dec – 14 Feb) | 9 | 22.5 |
| 4 | Pinpani kaalam – Masi, Panguni (15 Feb – 14 Apr) | 12 | 30 |
| 5 | Ilavenirkaalam - Chithirai, vaikasi (15 Apr – 14 June) | 0 | 0 |
| 6 | Muthuvenirkaalam-aani, aadi (15 June-14 Aug) | 17 | 42.5 |




**Inference**

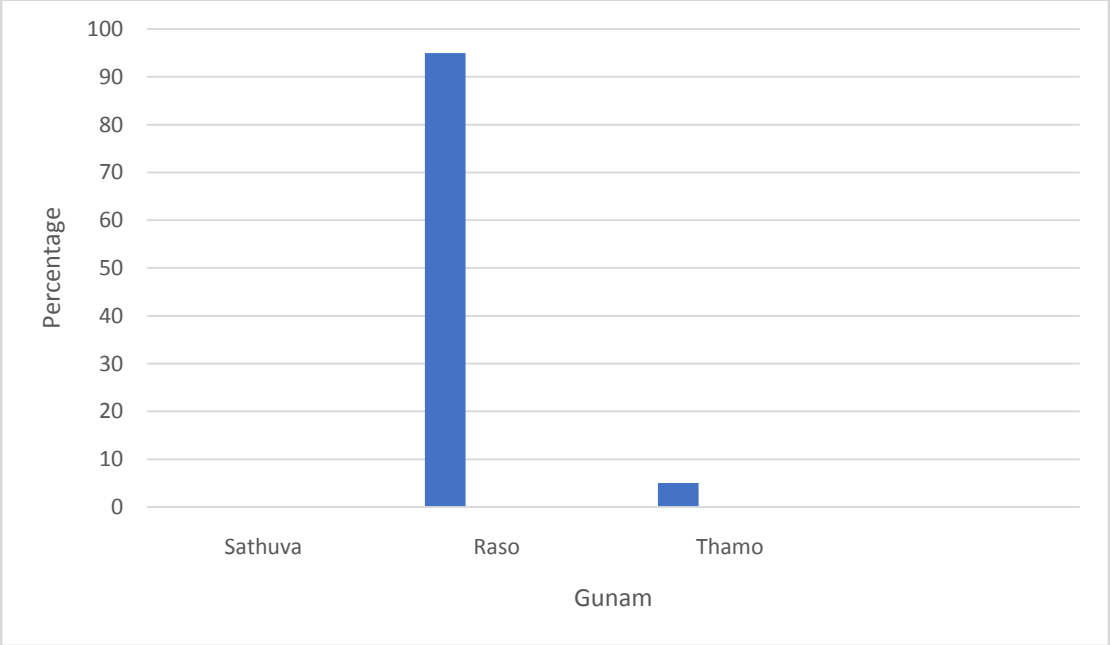
Among 40 cases,

- 2.5% of patients were admitted in kaarkalam
- 2.5% of patients were admitted in koothirkaalam
- 22.5% of patients were admitted in Munpanikalam
- 30% of cases were admitted in pinpanikalam
- 42.5% were admitted in muthuvenirkaalam

**Table 5**

**GUNAM**

| S.NO. | GUNAM | NO OF CASES | PERCENTAGE % |
|---|---|---|---|
| 1 | SATHUVA | 0 | 0 |
| 2 | RASO | 38 | 95 |
| 3 | THAMO | 2 | 5 |



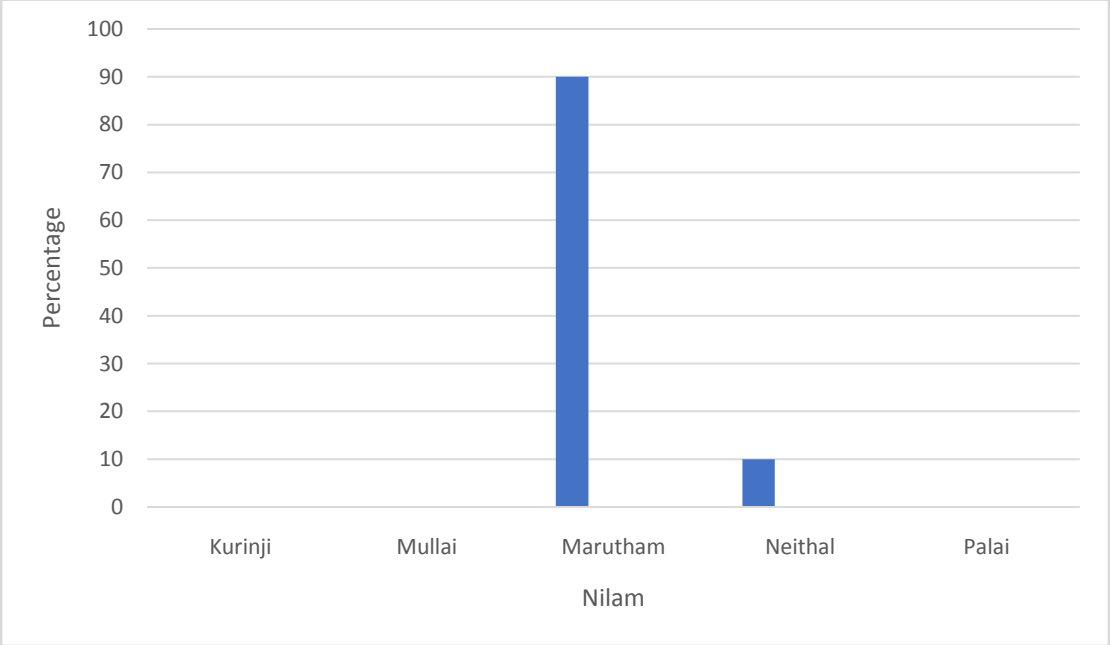

Inference

- About 95% of the patients had Rasogunam
- 5% of the patients had Thamogunam

**Table 6**

**THINAI**

| S.NO. | THINAI | NO OF CASES | PERCENTAGE |
|---|---|---|---|
| 1 | KURINJI | 0 | 0 |
| 2 | MULLAI | 0 | 0 |
| 3 | MARUTHAM | 36 | 90 |
| 4 | NEITHAL | 4 | 10 |
| 5 | PALAI | 0 | 0 |



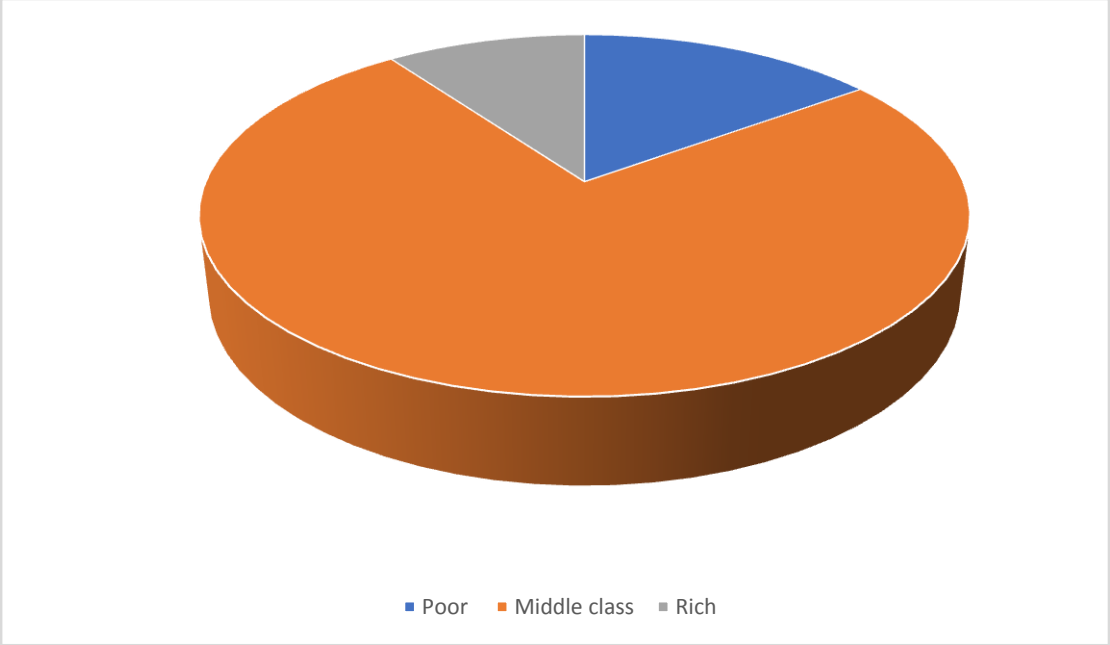

**Inference**

About 90% of the patients were from marutham, 10% were from Neithal.

**Table 7**

**SOCIO ECONOMIC STATUS**

| S.NO | SOCIO ECONOMIC STATUS | NO OF CASES | PERCENTAGE |
|---|---|---|---|
| 1 | Poor | 6 | 15% |
| 2 | Middle class | 30 | 75% |
| 3 | Rich | 4 | 10% |



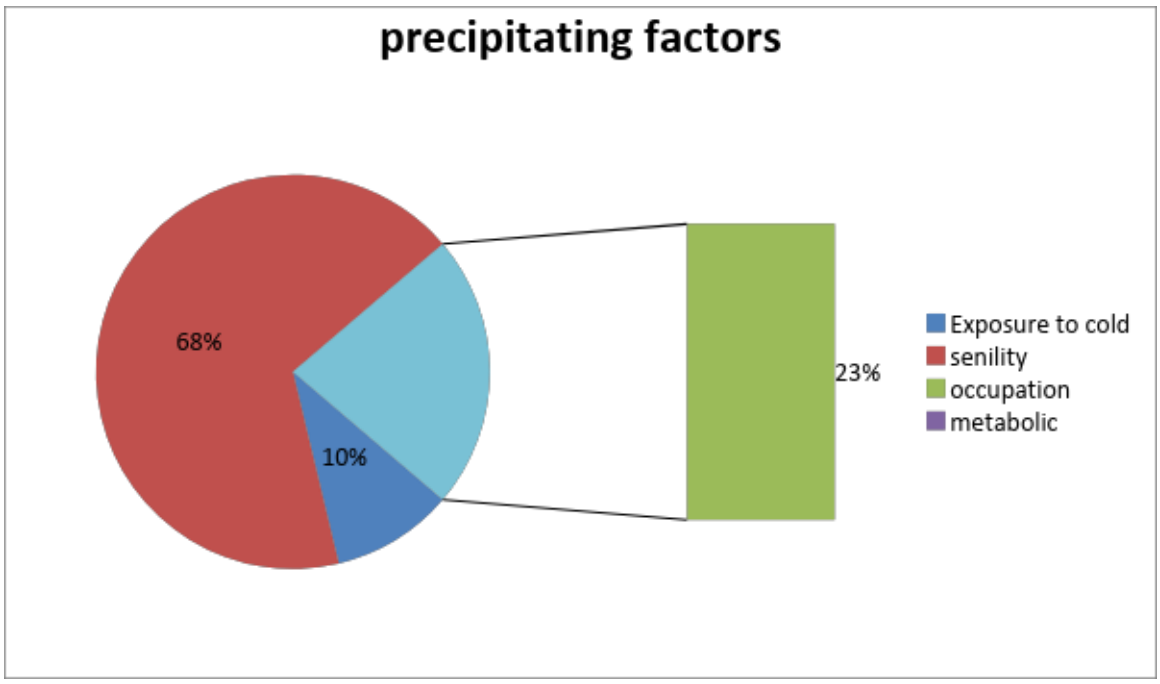

**Inference**

The above study consists of 75% of cases from middle class, 15 % of cases from poor and 10 % of rich.

**Table 8**

**DISTRIBUTION BASED ON ETIOLOGICAL FACTORS**

| S.NO. | PRECIPITATING FACTORS | NO OF CASES | PERCENTAGE % |
|---|---|---|---|
| 1 | Exposure to cold | 4 | 10% |
| 2 | Senility | 27 | 67.5% |
| 3 | Occupation | 9 | 22.5% |
| 4 | Metabolic | 0 | 0 |



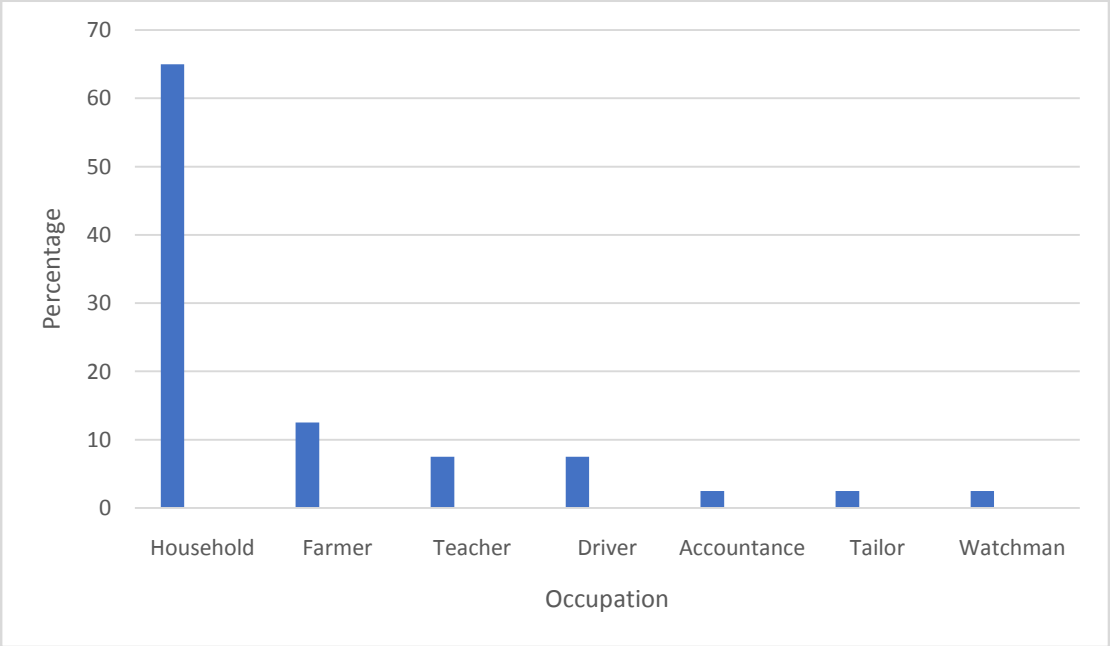

**Inference**

It was noted while taking the history of the patients Santhuvatham was caused mainly 67% due to the senility. The remaining were due to other factors like occupation and exposure to cold.

**Table 9**

**OCCUPATIONAL STATUS**

| S.NO | OCCUPATION | NO OF CASES | PERCENTAGE % |
|---|---|---|---|
| 1 | Farmer | 5 | 12.5% |
| 2 | Household | 26 | 65% |
| 3 | Accountants | 1 | 2.5% |
| 4 | Driver | 3 | 7.5 % |
| 5 | Teacher | 3 | 7.5 % |
| 6 | Watchmen | 1 | 2.5 % |
| 7 | Tailor | 1 | 2.5% |




**Inference**

65% has been household

12.5% has been farmer

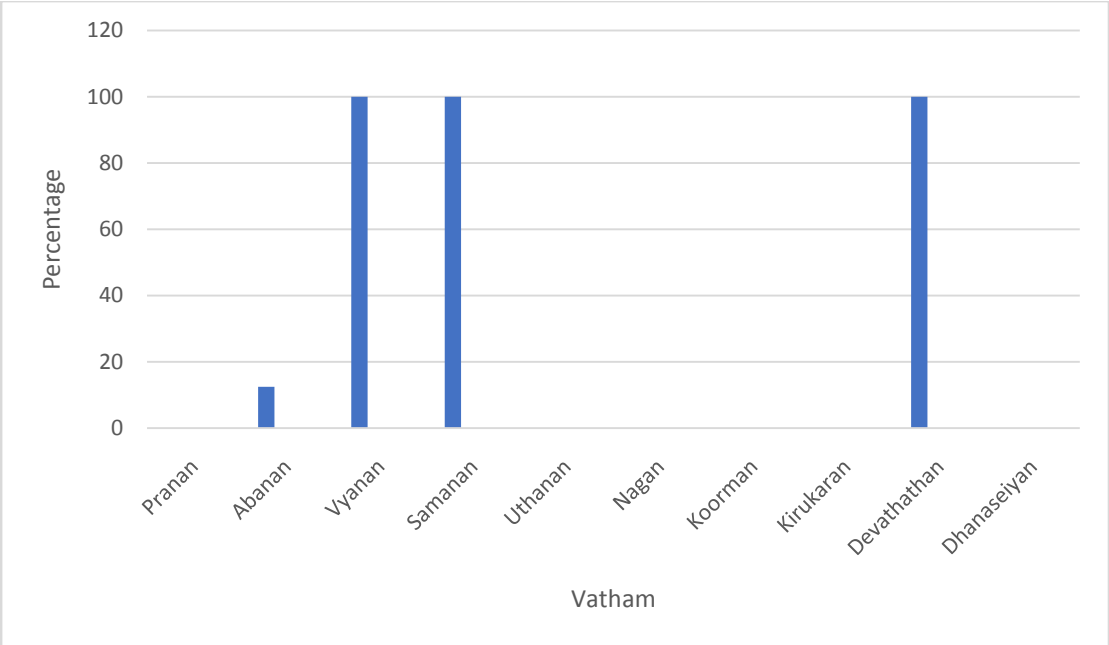
7.5% has been Teacher and Driver

2.5% has been Accountance, Tailor and Watchman.

**Table 10**

**DISTURBANCES IN VATHAM**

| S.NO | VATHAM | NO OF CASES | PERCENTAGE |
|---|---|---|---|
| 1 | PRANAN | 0 | 0 |
| 2 | ABANAN | 5 | 12.5% |
| 3 | VYANAN | 40 | 100 % |
| 4 | SAMANAN | 40 | 100 % |
| 5 | UTHANAN | 0 | 0 |
| 6 | NAAGAN | 0 | 0 |
| 7 | KOORMAN | 0 | 0 |
| 8 | KIRUKARAN | 0 | 0 |
| 9 | DEVATHATHAN | 40 | 100% |
| 10 | DHANASEIYAN | 0 | 0 |



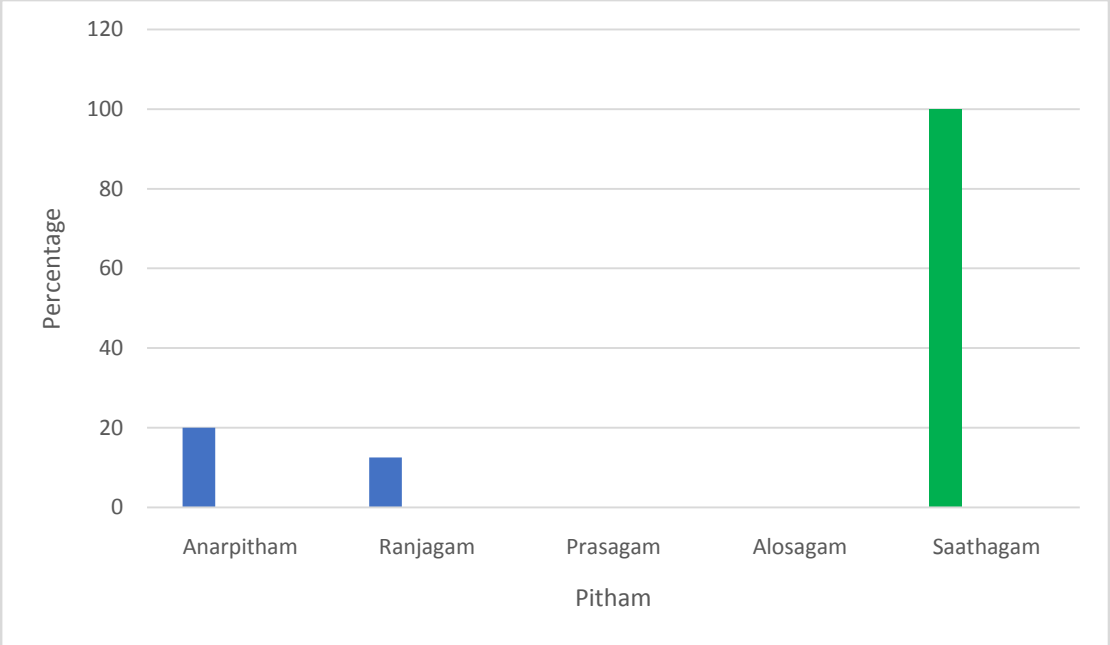

**Inference**

100% has Viyanan, Samanan, Devathathan affected (restricted movement of affected joints and radiating pain, Sleeplessness), samanan affected (due to vyanan affected), 12.5% abanan affected (constipation).

**Table 11**

**DISTURBANCES IN PITHAM**

| S.NO | PITHAM | NO OF CASES | PERCENTAGE% |
|---|---|---|---|
| 1 | Anarpitham | 8 | 20% |
| 2 | Ranjagam | 5 | 12.5% |
| 3 | Prasagam | 0 | 0 |
| 4 | Alosagam | 0 | 0 |
| 5 | Saathagam | 40 | 100 % |




**Inference**

100% saathagam pitham has affected (pain and restricted movement).

20% Anarpitham has affected (loss of appetite).

12.5% ranjagam pitham has affected (Hb level decreased).

**Table 12**

**DISTURBANCES IN KABHAM**

| S.NO | KABHAM | NO OF CASES | PERCENTAGE% |
|---|---|---|---|
| 1 | Avalambagam | 40 | 100 % |
| 2 | Kilethagam | 0 | 0 |
| 3 | Pothagam | 0 | 0 |
| 4 | Tharpagam | 0 | 0 |
| 5 | Santhigam | 40 | 100 % |

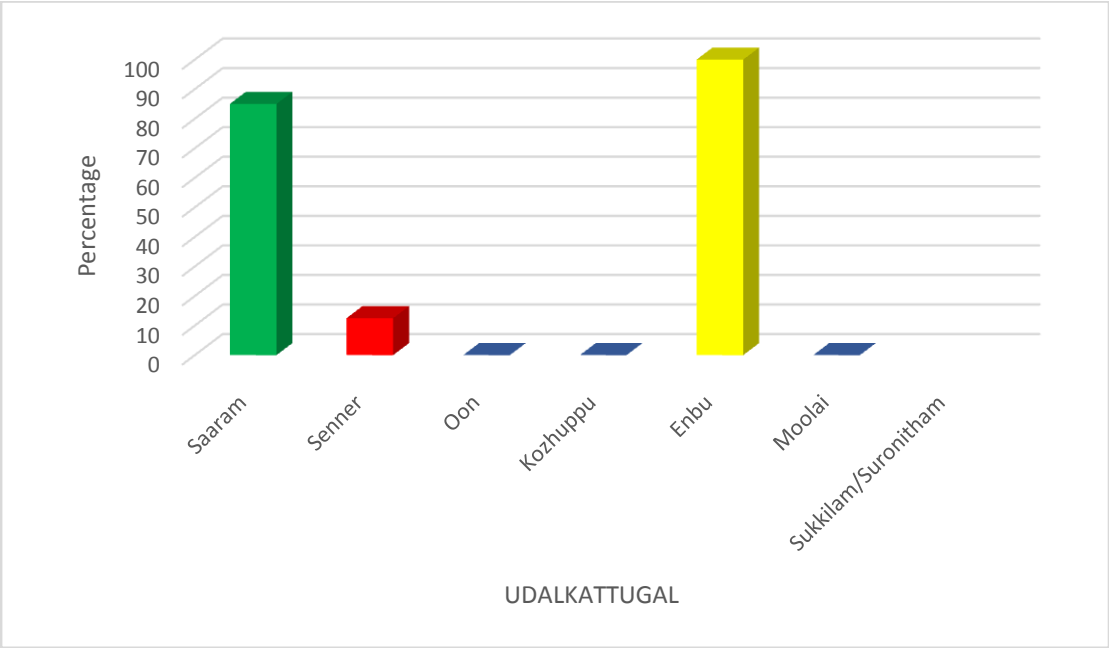

**Inference**

100% Avalambagam and Santhigam has affected (pain and restricted movement).

**Table 13**

**CONDITIONS OF UDAL KATTUKAL**

| S.NO. | UDAL KATTUKAL | NO OF CASES | PERCENTAGE% |
|---|---|---|---|
| 1 | Saaram | 34 | 85% |
| 2 | Senner | 5 | 12.5% |
| 3 | Oon | 0 | 0 |
| 4 | Kozhuppu | 0 | 0 |
| 5 | Enbu | 40 | 100% |
| 6 | Moolai | 0 | 0 |
| 7 | Sukkilam/Suronitham | 0 | 0 |



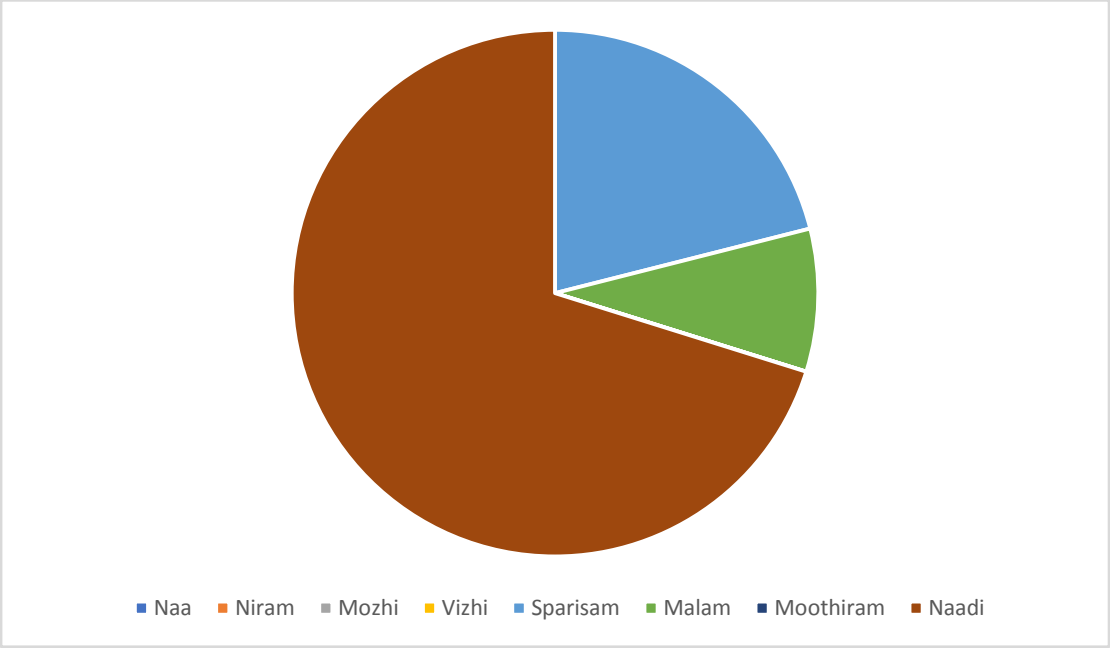

**Inference**

In 7 udal kattukal , 100% was enbu affected(restricted in joint movement),85% was saaram affected (loss of strength to body), 12.5% senner was affected(low energy).

**Table 14**

**CONDITION OF ENVAGAITHERVUGAL**

| S.No. | Envagai thervugal | Number of cases | Percentage% |
|---|---|---|---|
| 1. | Naa | 5 | 12.5% |
| 2. | Niram | 0 | 0 |
| 3. | Mozhi | 0 | 0 |
| 4. | Vizhi | 0 | 0 |
| 5. | Sparisam | 0 | 0 |
| 6. | Malam | 5 | 12.5% |
| 7. | Moothiram | 0 | 0 |
| 8. | Naadi | 40 | 100% |




**Inference**

100% seen in naadi (patient had thontha naadi)

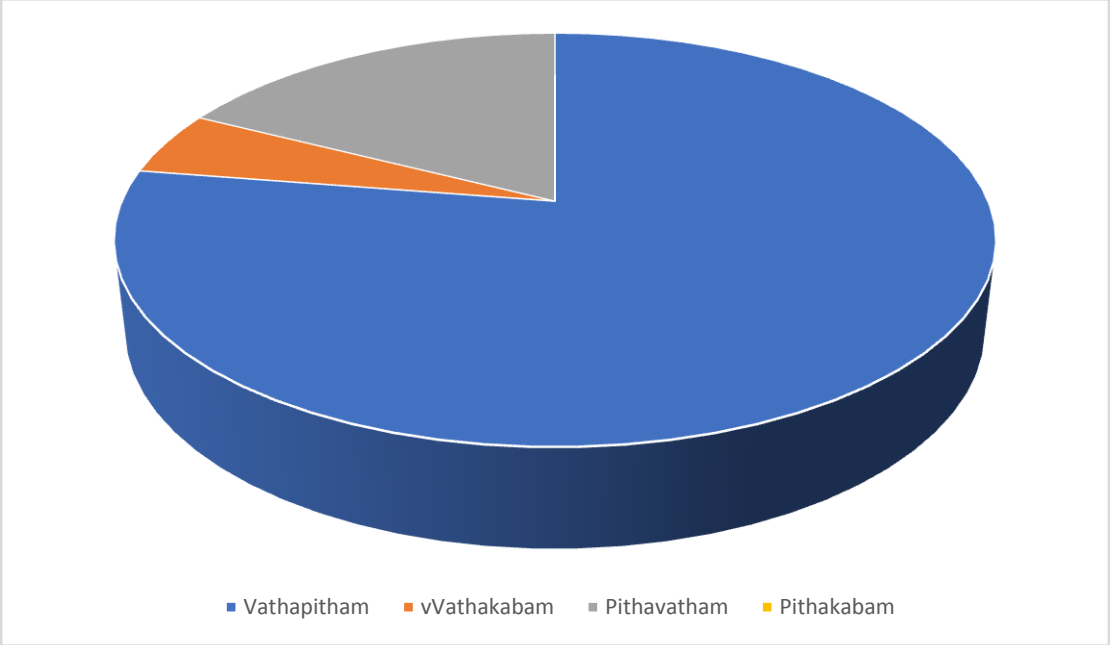
12.5% seen in Naa.

12.5% seen in malam (constipation).s

**Table 15**

**ILLUSTRATION OF NAADI**

| S.No. | Parameters | Number of cases | Percentage |
|---|---|---|---|
| 1. | Vathapitham | 31 | 77.5 |
| 2. | Vatha kabam | 2 | 5 |
| 3. | Pitha vatham | 7 | 17.5 |
| 4. | Pitha kabam | 0 | 0 |



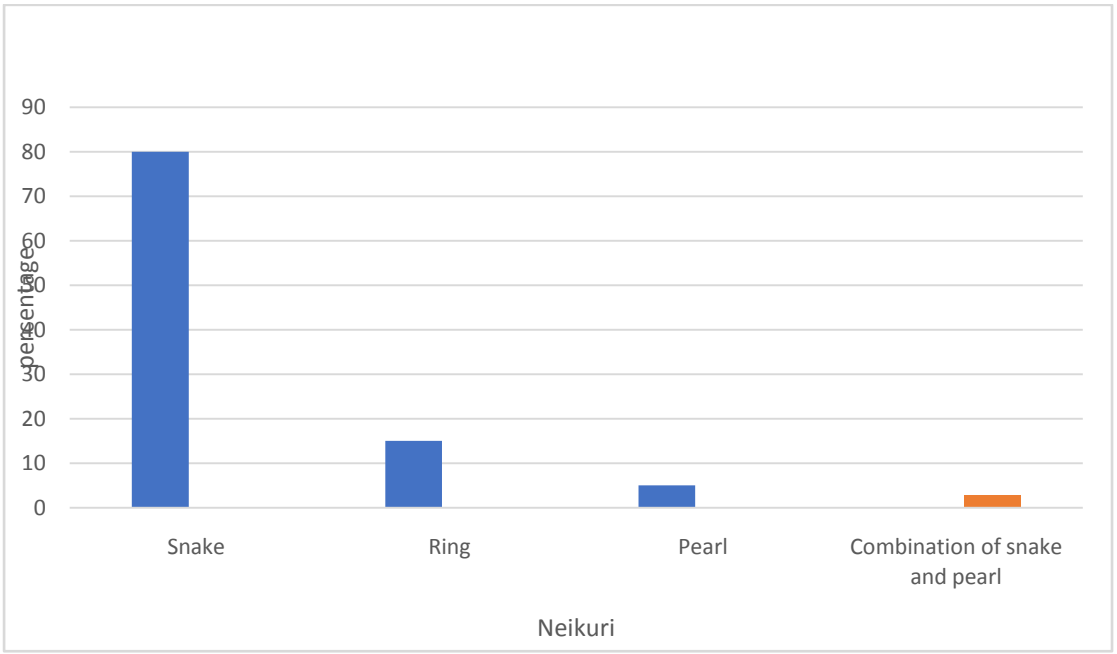

**Inference**

As mentioned above thontha naadi was noted in all cases and among them 50% were Vathapitha nadi, 5 % were vathakabha nadi and remaining 17.5% were pithavatha nadi.

**Table 16**

**NEIKURI**

| S.NO | SPREADING PATTERNS | NO OF CASES | PERCENTAGE % |
|---|---|---|---|
| 1 | Snake | 32 | 80 |
| 2 | Ring | 6 | 15 |
| 3 | Pearl | 2 | 5 |
| 4 | Combination of snake and pearl | 0 | 0 |



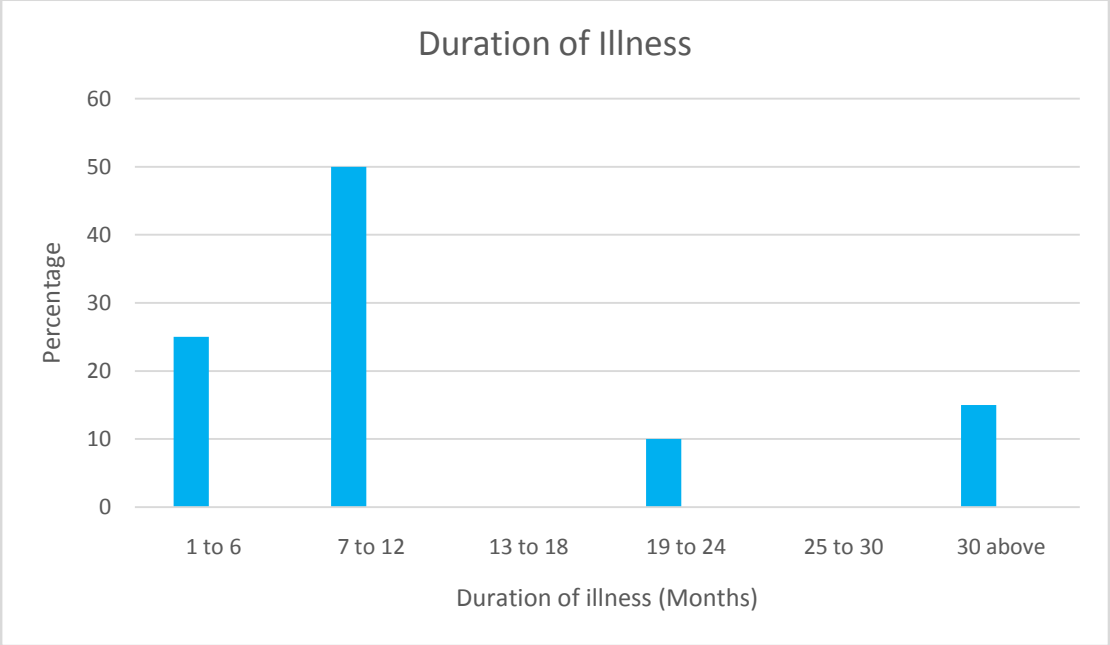

**Inference**

In neikuri analysis, 80% with vatha neer, 5% with kaba neer and the remaining 15% presented pitha neer.

**Table 17**

**DURATION OF ILLNESS**

| S.No. | Duration of illness (Months) | Number of cases | Percentage (%) |
|---|---|---|---|
| 1. | 1- 6 | 10 | 25 |
| 2. | 7 – 12 | 20 | 50 |
| 3. | 13 – 18 | 0 | 0 |
| 4. | 19-24 | 4 | 10 |
| 5. | 25-30 | 0 | 0 |
| 6. | 30 Above | 6 | 15 |



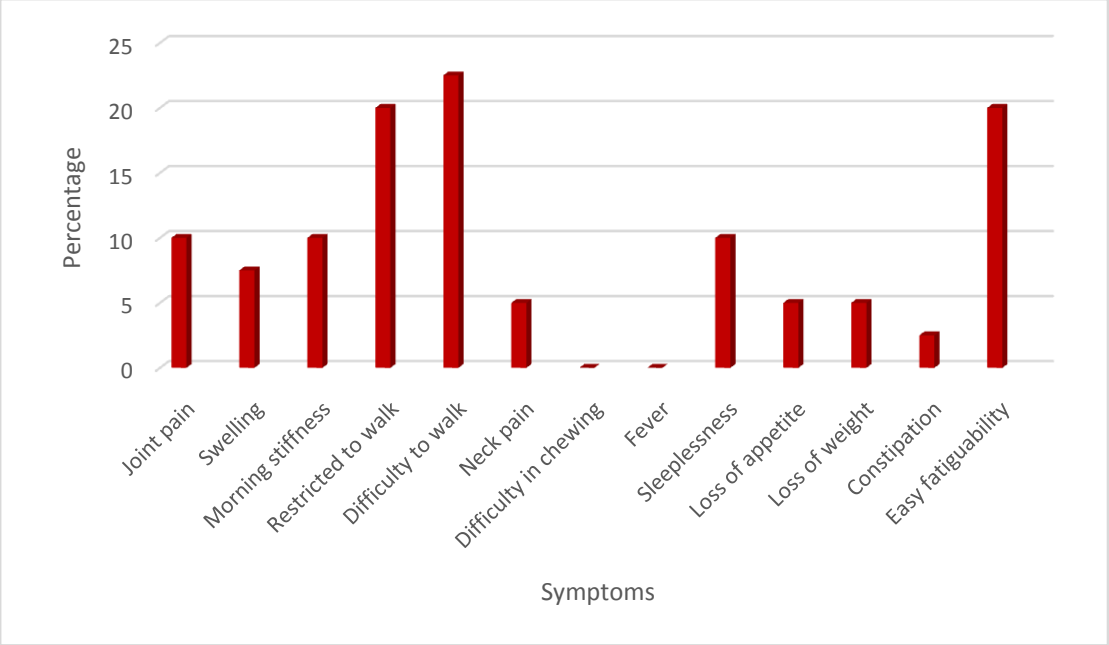

**Inference**

In duration of illness, 25% occur upto 6 months, 50 % occur in 7-12 months, 10% occur in19-24 months, 15% occur in Above 30 months.

**Table 18**

**CLINICAL MANIFESTATIONS**

| S.NO | SYMPTOMS | BEFORE TREATMENT | | AFTER TREATMENT | |
|---|---|---|---|---|---|
| | | NO OF CASES% | PERCENTAGE% | NO OF CASES | PERCENTAGE% |
| 1. | Joint pain | 40 | 100 | 4 | 10 |
| 2. | Swelling | 20 | 50 | 3 | 7.5 |
| 3. | Morning stiffness | 30 | 75 | 4 | 10 |
| 4. | Restricted to walk | 27 | 67.5 | 8 | 20 |
| 5. | Difficulty to walk | 33 | 82.5 | 9 | 22.5 |
| 6. | Neck pain | 8 | 20 | 2 | 5 |
| 7. | Difficulty in chewing | 0 | 0 | 0 | 0 |
| 8. | Fever | 0 | 0 | 0 | 0 |
| 9. | Sleeplessness | 23 | 57.5 | 4 | 10 |
| 10. | Loss of appetite | 20 | 50 | 2 | 5 |
| 11. | Loss of weight | 5 | 12.5 | 2 | 5 |
| 12. | Constipation | 10 | 25 | 1 | 2.5 |
| 13. | Easy fatiguability | 34 | 85 | 8 | 20 |




**Inference**

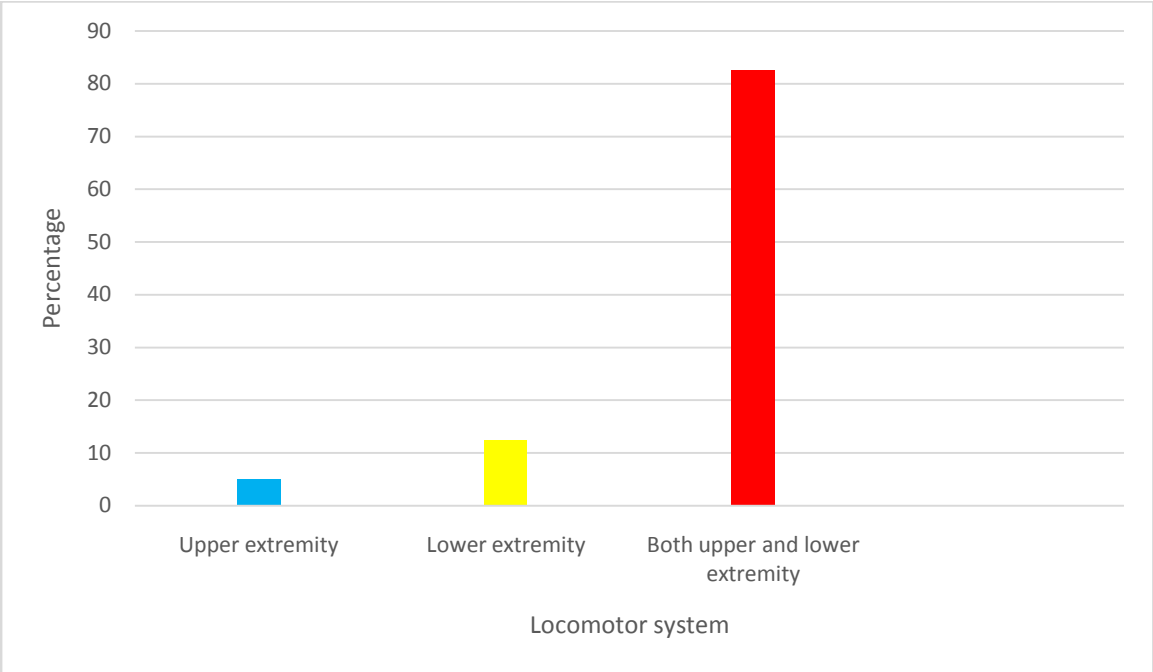
Before treatment 100% of cases had pain, 82.5% of cases has difficulty to walk, 75% of cases had morning stiffness, 67.5% if cases had restricted to walk, 57.5% of cases had sleeplessness, 12.5% has loss of weight ,50% of cases had swelling and loss of appetite, 85% of cases had easy fatiguability and 25% has constipation.

After treatment 10% of cases had pain, morning stiffness, sleeplessness. 20% of cases had easy fatiguability, restricted to walk, 22.5% of cases had difficulty to walk. 7.5% cases had swelling, 5% of cases had loss of appetite, loss of weight and neck pain, 2.5% of cases had constipation.

**Table 19**

**LOCOMOTOR SYSTEM**

| S.NO | INVOLVEMENT OF UPPER AND LOWER EXTREMITIES | NO OF CASES | PERCENTAGE % |
|---|---|---|---|
| 1 | Upper extremity | 2 | 5 |
| 2 | Lower extremity | 5 | 12.5 |
| 3 | Both upper and lower extremity | 33 | 82.5 |



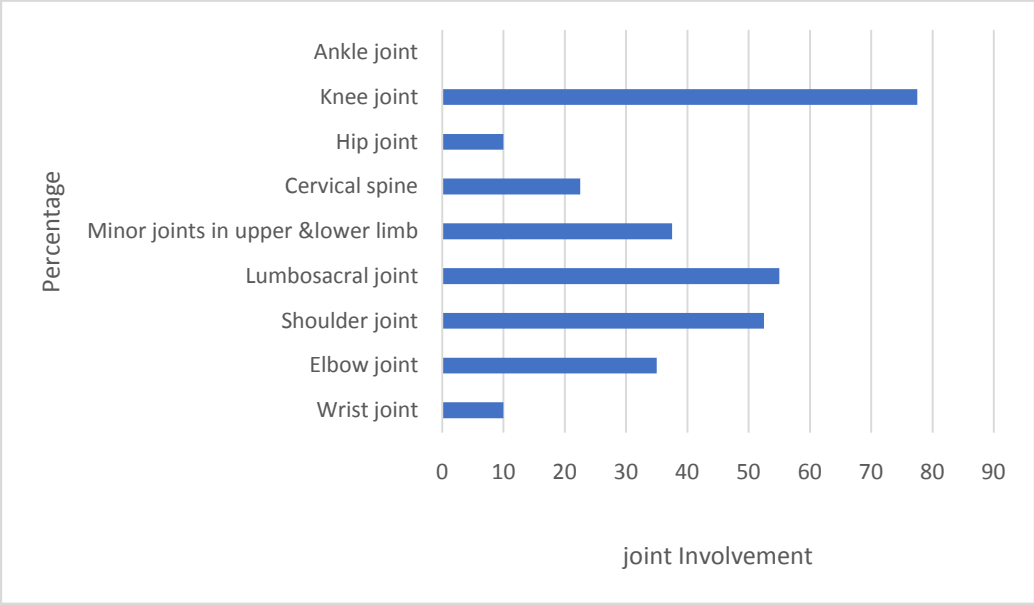

**Inference**

12.5% cases show lower extremity, 5% cases show upper extremity and 82.5% cases show both.

**Table 20**

**INCIDENCE OF INDIVUDUAL JOINT INVOLVEMENT**

| S. NO | JOINT INVOLEMENT | NO OF CASES | PERCENTAGE % |
|---|---|---|---|
| 1. | Wrist joint | 4 | 10 |
| 2. | Elbow joint | 14 | 35 |
| 3. | Shoulder joint | 21 | 52.5 |
| 4. | Lumbosacral joint | 22 | 55 |
| 5. | Minor joints in upper &lower limb | 15 | 37.5 |
| 6. | Cervical spine | 9 | 22.5 |
| 7. | Hip joint | 4 | 10 |
| 8. | Knee joint | 31 | 77.5 |
| 9. | Ankle joint | 8 | 20 |



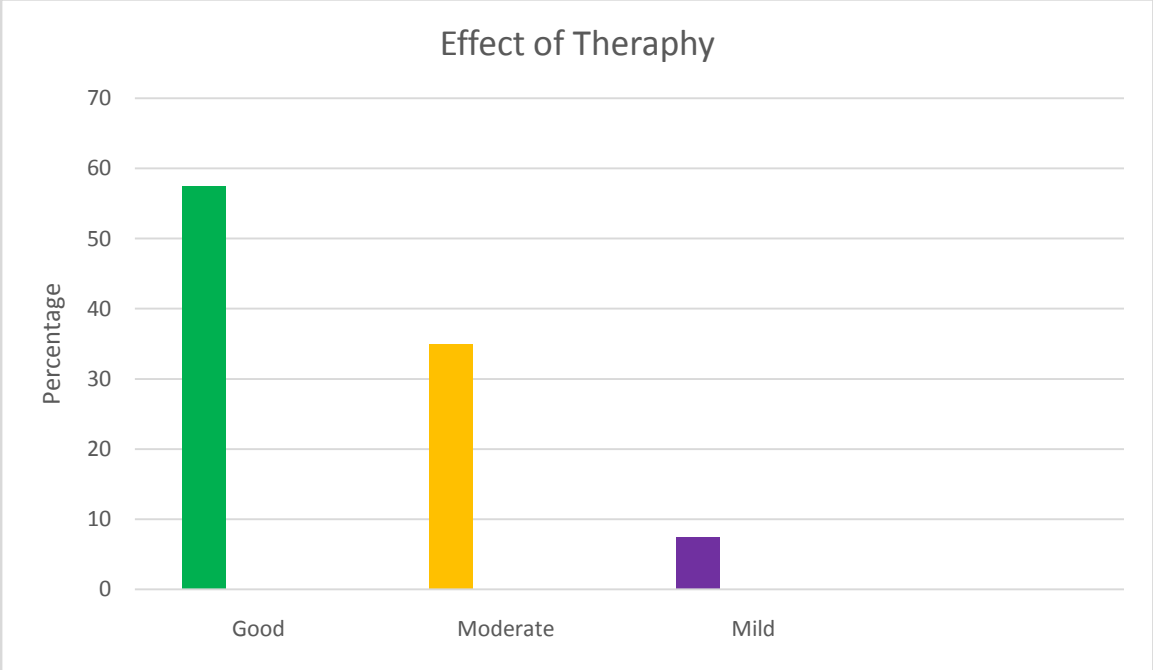

**Inference:**

77.5% cases show pain in knee joint 55 % cases show pain in lumbosacral joint, 10% cases show pain in hip joint and 20 % show pain in ankle joint, 52.5% cases show pain in shoulder , 10% cases show pain in wrist joints, 35% cases show pain in elbow joint, 22.5 % cases show pain in cervical spine.37.5 % case show pain in minor joints in upper and lower limb.

**Table 21**

**EFFECT OF THERAPHY**

| S.NO | EFFECT OF THERAPHY | NO OF CASES | PERCENTAGE |
|---|---|---|---|
| 1. | Good | 23 | 57.5% |
| 2. | Moderate | 14 | 35% |
| 3. | Mild | 3 | 7.5% |
| 4. | No | 0 | 0 |




**Inference**

Administration of theraphy had a 57.5% with good response, 35% with moderate and 7.5% with mild response.

| CASE SUMMARY OF IP AND OP PATIENTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **S.NO** | **OP & IP** | **NAME** | **AGE/ SEX** | **OCCUPATION** | **DATE OF ADMISSION** | **DATE OF DISCHARGE** | **TOTAL NO OF DAYS TREATED** | **RESULT** |
| 1 | 54139(OP) | Lilly | 51/F | House wife | 27.6.18 | 16.8.18 | 21 days | Mild |
| 2 | 54720(OP) | Meenakumari | 42/F | Teacher | 29.6.18 | 31.7.18 | 33 days | Moderate |
| 3 | 55105(OP) | Sivagamy | 58/F | Housewife | 30.6.18 | 8.8.18 | 40 days | Good |
| 4 | 55398(OP) | Jancymala | 40/F | Teacher | 2.7.18 | 16.8.18 | 46 days | Good |
| 5 | 56584(OP) | Adhamibrahim | 50/M | Farmer | 6.7.18 | 5.8.18 | 31 days | Moderate |
| 6 | 57700(OP) | Radha | 33/F | Accountants | 10.7.18 | 28.8.18 | 50 days | Good |
| 7 | 1881(IP) | Ishmaiyil meera | 60/F | Housewife | 24.7.18 | 23.8.18 | 32 days | Moderate |
| 8 | 53906(OP) | Habeeba | 40/F | Housewife | 24.7.18 | 28.818 | 36 days | Good |
| 9 | 1889(IP) | Jothiarulselvi | 58/F | Tailor | 25.7.18 | 2.9.18 | 41 days | Good |
| 10 | 1893(IP) | Pattamal | 60/F | Housewife | 25.7.18 | 21.8.18 | 28 days | Moderate |
| 11 | 56879(OP) | Bashir | 39/M | Driver | 26.7.18 | 30.8.18 | 36 days | Good |
| 12 | 62154(OP) | Murugan | 49/M | Teacher | 26.7.18 | 4.9.18 | 41 days | Good |
| 13 | 1924(IP) | Sundharammal | 60/F | Housewife | 28.7.18 | 1.9.18 | 36 days | Good |
| 14 | 2075(IP) | Bhakyalakshmi | 50/F | Housewife | 10.8.18 | 14.9.18 | 36 days | Good |
| 15 | 66355(OP) | Stalin | 60/M | Driver | 10.8.18 | 8.9.18 | 31 days | Moderate |
| 16 | 66453(OP) | Muthumalathy | 32/F | Housewife | 10.8.18 | 17.9.18 | 39 days | Good |
| 17 | 2060(IP) | Selvaraj | 56/M | Farmer | 11.8.18 | 19.9.18 | 40 days | Good |
| 18 | 70060(OP) | Petchiyammal | 53/F | Housewife | 23.8.18 | 27.9.18 | 37 days | Good |
| 19 | 2989(IP) | Tamilselvi | 52/F | Housewife | 7.12.18 | 3.1.19 | 28 days | Moderate |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 20 | 2127(OP) | Pappathi | 55/F | Housewife | 4.1.19 | 6.2.19 | 34 days | Moderate |
| 21 | 68(IP) | Mariyammal | 51/F | Housewife | 17.1.19 | 17.2.19 | 32 days | Moderate |
| 22 | 8800(OP) | Premalatha | 55/F | Housewife | 23.1.19 | 27.2.19 | 36 days | Good |
| 23 | 8836(OP) | Nisha | 40/F | Housewife | 23.1.19 | 28.2.19 | 37 days | Good |
| 24 | 9543(OP) | Meena | 52/F | Housewife | 25.1.19 | 8.3.19 | 43 days | Good |
| 25 | 201(IP) | Anandhammal | 60/F | Housewife | 30.1.19 | 10.3.19 | 40 days | Good |
| 26 | 286(IP) | Mariyammal | 33/F | Housewife | 8.2.19 | 11.3.19 | 32 days | Moderate |
| 27 | 327(IP) | Ayisha | 56/F | Housewife | 11.2.19 | 22.3.19 | 40 days | Good |
| 28 | 16331(OP) | Vijayalakshmi | 40/F | Housewife | 13.2.19 | 27.3.19 | 43 days | Good |
| 29 | 18006(OP) | Beema | 47/F | Housewife | 18.2.19 | 14.3.19 | 25 days | Mild |
| 30 | 19268(OP) | Anthoniyammal | 46/F | Housewife | 22.2.19 | 7.4.19 | 45 days | Good |
| 31 | 55970(OP) | Nisha | 55/F | Housewife | 24.2.19 | 31.3.19 | 36 days | Good |
| 32 | 509(IP) | Parameshwari | 58/F | Housewife | 27.2.19 | 7.4.19 | 40 days | Good |
| 33 | 543(IP) | Saradha | 54/F | Housewife | 2.3.19 | 31.3.19 | 30 days | Moderate |
| 34 | 571(IP) | Manickam | 58/M | Farmer | 6.3.19 | 30.3.19 | 25 days | Mild |
| 35 | 587(IP) | Natarajan | 46/M | Watchman | 7.3.19 | 15.4.19 | 40 days | Good |
| 36 | 719(IP) | Malliga | 44/F | Housewife | 22.3.19 | 28.4.19 | 38 days | Good |
| 37 | 814(IP) | Essakimuthu | 56/M | Driver | 29.3.19 | 28.4.19 | 32 days | Moderate |
| 38 | 846(IP) | Mydhinbeevi | 38/F | Housewife | 1.4.19 | 28.4.19 | 28 days | Moderate |
| 39 | 849(IP) | Sankarapandiyan | 57/M | Farmer | 2.4.19 | 29.4.19 | 29 days | Moderate |
| 40 | 850(IP) | Sokkalingam | 56/M | Farmer | 2.4.19 | 29.4.19 | 29 days | Moderate |

## BLOOD INVESTIGATION OF PATIENTS

| S.NO | OP and IP.NO | AGE/ SEX | BLOOD SUGAR | | BLOOD UREA(MGS%) | | SERUM CHOLESTEROL(MGS%) | | RA FACTOR | ASO TITRE | C-REACTIVE PROTEIN | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | BT | AT | BT | AT | BT | AT | | | | |
| 1 | 54139 | 51/F | 92 | 90 | 39 | 35 | 168 | 150 | -VE | -VE | 7.2 | 3.3 |
| 2 | 54720 | 42/F | 81 | 80 | 42 | 12 | 186 | 180 | -VE | -VE | 15.7 | 4.1 |
| 3 | 55105 | 58/F | 96 | 93 | 20 | 18 | 191 | 186 | -VE | -VE | 9.5 | 2.7 |
| 4 | 55398 | 40/F | 96 | 90 | 28 | 26 | 180 | 170 | -VE | -VE | 14.1 | 5.3 |
| 5 | 56584 | 50/M | 70 | 80 | 19 | 21 | 286 | 198 | -VE | -VE | 17.2 | 8.3 |
| 6 | 57700 | 33/F | 98 | 97 | 26 | 23 | 191 | 183 | -VE | -VE | 12.2 | 5.2 |
| 7 | 1881 | 60/F | 72 | 75 | 28 | 23 | 230 | 200 | -VE | -VE | 11.8 | 3.3 |
| 8 | 53906 | 40/F | 77 | 80 | 32 | 28 | 167 | 158 | -VE | -VE | 13.3 | 6.6 |
| 9 | 1889 | 58/F | 82 | 90 | 20 | 16 | 181 | 180 | -VE | -VE | 9.4 | 5.2 |
| 10 | 1893 | 60/F | 72 | 80 | 23 | 18 | 230 | 200 | -VE | -VE | 17.2 | 8.3 |
| 11 | 56879 | 39/M | 90 | 92 | 18 | 18 | 155 | 154 | -VE | -VE | 12.4 | 4.3 |
| 12 | 62154 | 49/M | 85 | 80 | 20 | 18 | 183 | 170 | -VE | -VE | 16.3 | 6.2 |
| 13 | 1924 | 60/F | 190 | 170 | 22 | 20 | 209 | 200 | -VE | -VE | 9.5 | 5.5 |
| 14 | 2075 | 50/F | 111 | 100 | 17 | 15 | 187 | 185 | -VE | -VE | 9.6 | 3.8 |
| 15 | 66355 | 60/M | 85 | 86 | 23 | 19 | 181 | 180 | -VE | -VE | 9.5 | 2.7 |
| 16 | 66453 | 32/F | 85 | 80 | 21 | 19 | 166 | 160 | -VE | -VE | 15.7 | 6.3 |
| 17 | 2060 | 56/M | 116 | 118 | 18 | 18 | 160 | 158 | -VE | -VE | 12.7 | 4.2 |
| 18 | 70060 | 53/F | 131 | 133 | 20 | 19 | 150 | 150 | -VE | -VE | 19.4 | 7.5 |
| 19 | 2989 | 52/F | 78 | 93 | 22 | 16 | 189 | 185 | -VE | -VE | 9.5 | 2.7 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 2127 | 55/F | 92 | 90 | 23 | 20 | 190 | 160 | -VE | -VE | 11.4 | 7.5 |
| 21 | 68 | 51/F | 95 | 90 | 22 | 18 | 160 | 155 | -VE | -VE | 9.5 | 2.7 |
| 22 | 8800 | 55/F | 91 | 90 | 18 | 21 | 160 | 160 | -VE | -VE | 11.4 | 7.5 |
| 23 | 8836 | 40/F | 138 | 130 | 23 | 23 | 153 | 152 | -VE | -VE | 15.7 | 4.1 |
| 24 | 9543 | 52/F | 102 | 100 | 20 | 18 | 163 | 160 | -VE | -VE | 12.2 | 5.2 |
| 25 | 201 | 60/F | 85 | 90 | 22 | 16 | 173 | 169 | -VE | -VE | 14.1 | 5.3 |
| 26 | 286 | 33/F | 73 | 75 | 23 | 20 | 185 | 180 | -VE | -VE | 7.2 | 4.3 |
| 27 | 327 | 56/F | 250 | 230 | 21 | 19 | 160 | 165 | -VE | -VE | 12.2 | 5.3 |
| 28 | 16331 | 40/F | 85 | 90 | 23 | 20 | 154 | 150 | -VE | -VE | 11.8 | 3.3 |
| 29 | 18006 | 47/F | 90 | 95 | 20 | 18 | 151 | 148 | -VE | -VE | 13.3 | 6.6 |
| 30 | 19268 | 46/F | 82 | 85 | 18 | 18 | 264 | 230 | -VE | -VE | 12.6 | 7.3 |
| 31 | 55970 | 55/F | 85 | 80 | 23 | 20 | 160 | 154 | -VE | -VE | 9.4 | 5.2 |
| 32 | 509 | 58/F | 178 | 175 | 21 | 20 | 170 | 171 | -VE | -VE | 17.2 | 8.3 |
| 33 | 543 | 54/F | 100 | 98 | 22 | 18 | 168 | 156 | -VE | -VE | 12.4 | 4.3 |
| 34 | 571 | 58/M | 121 | 130 | 32 | 25 | 180 | 190 | -VE | -VE | 16.3 | 6.2 |
| 35 | 587 | 46/M | 73 | 70 | 21 | 20 | 146 | 145 | -VE | -VE | 9.5 | 5.5 |
| 36 | 719 | 44/F | 95 | 96 | 23 | 20 | 180 | 170 | -VE | -VE | 9.6 | 3.8 |
| 37 | 814 | 56/M | 103 | 98 | 23 | 22 | 103 | 100 | -VE | -VE | 11.8 | 5.5 |
| 38 | 846 | 38/F | 96 | 98 | 18 | 16 | 170 | 180 | -VE | -VE | 15.7 | 6.3 |
| 39 | 849 | 57/M | 89 | 88 | 28 | 25 | 191 | 180 | -VE | -VE | 12.7 | 4.2 |
| 40 | 850 | 56/M | 220 | 230 | 20 | 20 | 155 | 158 | -VE | -VE | 19.4 | 7.5 |

## BLOOD AND URINE INVESTIGATIONS OF PATIENTS

| s.no | OP and Ip.no | Haemotological investigation | | | | | | | | | | | | | | Urine analysis | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | WBC Total | | WBC differential count(%) | | | | | | Hb mg/dl | | ESR mm | | | | BT | | | AT | | |
| | | BT | AT | BT | | | AT | | | BT | AT | BT | | AT | | Sug | alb | Dep | Sug | Alb | Dep |
| | | | | P | L | E | P | L | E | | | ½ hr | 1 hr | ½ hr | 1hr | | | | | | |
| 1 | 54139 | 7500 | 7000 | 75 | 23 | 2 | 65 | 30 | 5 | 8.4 | 10.6 | 10 | 20 | 9 | 18 | Nil | Nil | Nil | Nil | Nil | Nil |
| 2 | 54720 | 5800 | 6000 | 68 | 28 | 4 | 66 | 30 | 4 | 11 | 13 | 16 | 32 | 15 | 30 | Nil | Nil | 10-12 pus cells | Nil | Nil | Few pus cells |
| 3 | 55105 | 6200 | 6000 | 65 | 31 | 4 | 64 | 33 | 3 | 10.6 | 11.6 | 18 | 35 | 15 | 30 | Nil | Nil | Nil | Nil | Nil | Nil |
| 4 | 55398 | 7200 | 7000 | 62 | 33 | 5 | 59 | 32 | 4 | 7 | 11.3 | 11 | 22 | 10 | 20 | Nil | Nil | Nil | Nil | Nil | Nil |
| 5 | 56584 | 7500 | 7000 | 76 | 19 | 4 | 77 | 19 | 3 | 12.2 | 12.2 | 18 | 35 | 14 | 28 | Nil | Nil | Nil | Nil | Nil | NAD |
| 6 | 57700 | 7100 | 7000 | 68 | 28 | 4 | 64 | 32 | 4 | 10.9 | 11 | 15 | 30 | 14 | 28 | Nil | Nil | NAD | Nil | Nil | NAD |
| 7 | 1881 | 5100 | 5400 | 63 | 30 | 7 | 62 | 33 | 5 | 10.4 | 11.4 | 13 | 26 | 13 | 25 | Nil | Nil | NAD | Nil | Nil | NAD |
| 8 | 53906 | 7800 | 7400 | 66 | 31 | 3 | 63 | 34 | 3 | 9.9 | 11.9 | 10 | 20 | 9 | 18 | Nil | Nil | NAD | Nil | Nil | NAD |
| 9 | 1889 | 7500 | 7400 | 75 | 20 | 5 | 73 | 22 | 5 | 13 | 14 | 9 | 18 | 5 | 20 | Nil | Nil | NAD | Nil | Nil | NAD |
| 10 | 1893 | 8100 | 7800 | 63 | 30 | 7 | 60 | 36 | 4 | 10.4 | 11.2 | 13 | 26 | 12 | 25 | Nil | Nil | NAD | Nil | Nil | NAD |
| 11 | 56879 | 6800 | 6400 | 67 | 30 | 3 | 63 | 34 | 3 | 13.6 | 13.6 | 9 | 18 | 8 | 17 | Nil | Nil | 1-2 Pus cells | Nil | Nil | NAD |
| 12 | 62154 | 7400 | 7200 | 64 | 30 | 6 | 58 | 24 | 4 | 12.5 | 13 | 10 | 20 | 8 | 18 | Nil | Nil | FPC | Nil | Nil | FPC |
| 13 | 1924 | 9500 | 8000 | 69 | 28 | 3 | 68 | 29 | 3 | 12.6 | 12.5 | 10 | 20 | 10 | 20 | Nil | Nil | NAD | Nil | Nil | NAD |
| 14 | 2075 | 9900 | 7800 | 80 | 16 | 4 | 78 | 18 | 4 | 13 | 14 | 7 | 14 | 6 | 12 | Nil | Nil | 1-2 pus cells | Nil | Nil | Few pus cells |
| 15 | 66355 | 8300 | 8200 | 66 | 30 | 4 | 64 | 33 | 3 | 13.5 | 13.5 | 11 | 22 | 10 | 20 | Nil | Nil | NAD | Nil | Nil | NAD |
| 16 | 66453 | 8000 | 7600 | 57 | 41 | 2 | 60 | 38 | 2 | 11.8 | 13.2 | 8 | 14 | 5 | 10 | Nil | Nil | NAD | Nil | Nil | NAD |

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | 2060 | 8000 | 7900 | 58 | 35 | 7 | 61 | 35 | 4 | 10.3 | 11.3 | 11 | 21 | 10 | 20 | Nil | Nil | NAD | Nil | Nil | NAD |
| 18 | 70060 | 7300 | 7100 | 68 | 28 | 4 | 68 | 29 | 3 | 13 | 14 | 9 | 18 | 11 | 22 | Nil | Nil | NAD | Nil | Nil | NAD |
| 19 | 2989 | 7800 | 7400 | 60 | 36 | 4 | 60 | 35 | 5 | 11.4 | 15 | 8 | 11 | 9 | 18 | Nil | Nil | FPC | Nil | Nil | NAD |
| 20 | 2127 | 7200 | 7400 | 64 | 32 | 4 | 63 | 34 | 4 | 13.6 | 13.6 | 13 | 26 | 12 | 25 | Nil | Nil | NAD | Nil | Nil | NAD |
| 21 | 68 | 7300 | 7000 | 65 | 30 | 5 | 62 | 33 | 5 | 12.6 | 13 | 10 | 20 | 10 | 20 | Nil | Nil | FPC | Nil | Nil | NAD |
| 22 | 8800 | 7000 | 7200 | 66 | 31 | 3 | 67 | 30 | 3 | 13.8 | 13 | 10 | 20 | 10 | 20 | Nil | Nil | NAD | Nil | Nil | NAD |
| 23 | 8836 | 7400 | 7300 | 66 | 30 | 4 | 65 | 31 | 4 | 13.2 | 13.5 | 10 | 20 | 10 | 20 | Nil | Nil | NAD | Nil | Nil | NAD |
| 24 | 9543 | 7200 | 7000 | 67 | 30 | 3 | 65 | 32 | 3 | 12.5 | 13 | 12 | 25 | 11 | 23 | Nil | Nil | FPC | Nil | Nil | FPC |
| 25 | 201 | 8200 | 7900 | 56 | 32 | 12 | 58 | 34 | 8 | 11.6 | 12 | 35 | 70 | 32 | 65 | Nil | Nil | 1-2 pus cells | Nil | Nil | NAD |
| 26 | 286 | 7800 | 7400 | 69 | 27 | 4 | 68 | 28 | 4 | 12.1 | 13 | 10 | 20 | 10 | 20 | Nil | Nil | NAD | Nil | Nil | NAD |
| 27 | 327 | 7300 | 7000 | 68 | 28 | 4 | 65 | 31 | 4 | 11.8 | 12 | 11 | 22 | 11 | 22 | + | Nil | NAD | Nil | Nil | NAD |
| 28 | 16331 | 7000 | 7200 | 60 | 35 | 5 | 65 | 30 | 5 | 11.6 | 12.8 | 7 | 14 | 8 | 16 | Nil | Nil | NAD | Nil | Nil | NAD |
| 29 | 18006 | 7300 | 7000 | 64 | 33 | 3 | 60 | 37 | 3 | 12.3 | 12.8 | 8 | 16 | 9 | 18 | Nil | Nil | NAD | Nil | Nil | NAD |
| 30 | 19268 | 5900 | 6200 | 65 | 30 | 5 | 59 | 37 | 4 | 10.6 | 10.8 | 40 | 80 | 35 | 75 | Nil | Nil | NAD | Nil | Nil | NAD |
| 31 | 55970 | 7500 | 7100 | 76 | 19 | 4 | 77 | 19 | 3 | 11.3 | 11 | 17 | 33 | 14 | 28 | Nil | Nil | NAD | Nil | Nil | NAD |
| 32 | 509 | 6800 | 7000 | 65 | 31 | 4 | 66 | 30 | 4 | 10.1 | 11.2 | 16 | 32 | 15 | 30 | + | Nil | FPC | Nil | Nil | FPC |
| 33 | 543 | 7500 | 7400 | 60 | 30 | 10 | 60 | 33 | 7 | 12.8 | 13 | 10 | 20 | 11 | 22 | Nil | Nil | NAD | Nil | Nil | NAD |
| 34 | 571 | 8200 | 8000 | 50 | 32 | 18 | 50 | 32 | 18 | 13.8 | 13 | 35 | 70 | 24 | 55 | Nil | Nil | NAD | Nil | Nil | NAD |
| 35 | 587 | 7700 | 7500 | 64 | 32 | 4 | 63 | 33 | 4 | 11.8 | 12 | 10 | 20 | 9 | 18 | Nil | Nil | NAD | Nil | Nil | NAD |
| 36 | 719 | 7400 | 7300 | 68 | 30 | 2 | 65 | 30 | 5 | 10.3 | 11 | 10 | 20 | 9 | 18 | Nil | Nil | FPC | Nil | Nil | NAD |
| 37 | 814 | 8200 | 8000 | 67 | 30 | 3 | 63 | 34 | 3 | 9.6 | 11.2 | 12 | 25 | 10 | 20 | Nil | Nil | FPC | Nil | Nil | NAD |
| 38 | 846 | 7400 | 7300 | 60 | 36 | 4 | 62 | 34 | 4 | 13 | 13 | 11 | 22 | 10 | 20 | Nil | Nil | NAD | Nil | Nil | NAD |
| 39 | 849 | 7300 | 7000 | 60 | 28 | 12 | 63 | 30 | 7 | 14 | 14 | 15 | 26 | 12 | 25 | Nil | Nil | NAD | Nil | Nil | NAD |
| 40 | 850 | 7200 | 7000 | 62 | 34 | 4 | 60 | 36 | 4 | 13.6 | 13 | 11 | 20 | 10 | 20 | + | Nil | NAD | Nil | Nil | NAD |

BT – Before Treatment AT- After Treatment ESR – Erythrocyte Sedimentation Rate HB – Haemoglobin BS – Blood sugar BU - Blood urea P-Polymorph L-Lymphocytes E – Eosinophils FPC-Few Pus Cells

## DISCUSSION

The main aim of the treatment was to study the Therapeutic effect of the drug **SARVANGAVATHA CHOORANAM** to reduce pain, swelling and restricted joint movements in the disease Santhuvatham. The clinical features of Santhuvatham can be correlated to Polyarthritis in modern science. Polyarthritis is a chronic inflammatory disease associated with symmetrical or asymmetrical involvement of joints.

**Gender Distribution:**

According to the Gender among the 40 patients selected, the disease was found to be higher in females 75% and in males 25%.

**Age Distribution:**

According to Age group, 31-40 years patients was 22.5%. In 41-50 years patients was 20%, In 51-60 years patients was 57.5%.

**Kaalam:**

In Kaalam out of 40 cases 95%cases were in Pithakaalam, 7.5% cases were in Vathakaalam.

**Paruvakaalam:**

In Paruvakaalam(Season) out of 40 cases 22.5% cases were included in Munpanikaalam, 30% cases were Pinpanikaalam and 2.5% were kaarkalam, 2.5% cases were koothirkaalam,42.5% cases were muthuvenirkaalam.

**Gunam:**

Based on Gunam out of 40 cases 95% were Rasogunam and 5% were Thamogunam.

**Thinai Distribution:**

In Thinai out of 40 cases 90% cases were from MaruthaNilam and the remaining 10% cases were Neithal Nilam.

**Socioeconomic Status:**

In Socio economic status out of 40 cases, 75% cases belonged to Middle Class, 15% cases belonged to Poor, 10% cases belonged to Rich.

**Etiological Factors:**

Based on Etiological Factors out of 40 cases 67.5% were due to senility, 22.5 %were due to Occupational and 10% were Exposure to cold.

**Occupational Distribution:**

In Occupational Distribution out of 40 cases, 12.5% were Farmers, 65% were Housewife, 2.5% were Accountants, Watchmen and Tailor, 7.5% were Teacher and Driver.

**Vatham Distribution:**

In Vatham out of 40 cases, 100% cases were affected in Samaanan, Vyanan and Devathathan, 12.5% cases were affected in Abanan.

**Pitham Distribution:**

In Pitham out of 40 cases, Saathagam was affected in 100% cases. Anarpitham was affected in 20% cases and Ranjagam was affected in 12.5% cases.

**Kabam Distribution:**

In Kabam out of 40 cases, Avalambagam and Santhigam was affected in 100% .

**Udalthathukkal:**

In Udalthathukkal out of 40 cases, 85% Saaram, 100 %Enbu, 12.5% senner was affected.

**Envagai thervu:**

In Envagaithervugal among the 40 cases, 100% was thontha naadi, 12.5% seen in Naa and 12.5% seen in malam.

**Naadi distribution:**

While seeing the Naadi among the 40 cases, PithaVaathanaadi was found 17.5% cases, VaathaPithanaadi was found 77.5% cases and VaathaKabam was found in 5% cases.

**Neikuri:**

In Neikkuri, among the 40 cases, 80% of the case showed snake pattern, 5% of the case showed pearl pattern and 15% shows ring pattern.

**Duration of illness:**

In Duration of illness out of 40 cases, 25% were occur 6 months, 50% occur in 7-12 months and 10% occur in 19-24 months,15% occur in above 30 months.

**Clinical Features:**

According to the clinical features all 100% of cases had joint pain, 75% cases shows morning stiffness, 67.5% has restriction to walk, 57.5% cases shows sleeplessness, 12.5% cases shows loss of weight, 50% shows swelling of joints, 50% shows loss of appetite, 82.5% shows difficulty to walk, 25% shows constipation, 20% shows neck pain and 85% cases shows easy fatiguability.

**Locomotor system:**

In Locomotor system the Lower extremity was affected in 12.5% cases, Upper extremity was affected in 5% cases and both was affected in 82.5% cases.

**Individual joints:**

In Individual joint involvement in 10% of cases in Hip joint, 77.5% of cases Knee joint were involved, in 10% cases in Wrist joint and 20%cases Ankle joint were involved, 52.5% cases Shoulder joint was involved and 35% cases Elbow joint was involved. 37.5% cases in minor and major joints in upper and lower limb. 55% cases in lumbosacral joint, 22.5% cases in cervical spine.

**Overall result:**

Overall Result in my study – 57.5% cases showed Good improvement, 35% cases showed Moderate improvement, 7.5% cases showed Mild improvement.

**Laboratory Investigation:**

Laboratory investigation of blood and urine were done for all 40 cases. There were significant changes in blood before and after treatment. Rheumatoid arthritis factor was negative in all cases. Blood sugar, blood urea and serum cholesterol were done. The values were found to be normal in all the cases.

Patients treated with Ottradam treatment showed very good results since there was good reduction in the pain of Santhuvatham patients in this clinical trial.

## SUMMARY

A collective and comparative study of the disease Santhuvatham is made covering the all aspects of the disease enclosing siddha and modern science aspects. Study drug standardised are botanical, pharmacological, and toxicological, these are supportive of trial drug for our santhuvatham.40 cases with santhuvatham were diagnosed clinically, Lab Investigations and treatment of trial medicines. The peak age incidence of Santhuvatham was found 51-60 years age group. Clinical diagnosis of the above disease was done on the basis of clinical features described in Yugi Vaidhya Chinthamani and Siddha Maruthuvam. Before admission for study their careful detailed history of the sufferings, duration, their occupation, native etc. are elicited from the 40 selected patients. The trial medicines for the clinical treatment and management of Santhuvatham were SARVANGAVATHA CHOORANAM, twice a day with base of hot water and for external use MUKKUTU YENNAI. External therpy Ottradam had effective. Biochemical analysis of SARVANGAVATHA CHOORANAM showed that the presence of calcium, sulphate, chloride, Starch, Ferrous iron, unsaturated compound and amino acid. The pharmacological study, the toxicological studies were done. During treatment, all the patients keep under strict pathiyam, a specific dietary regimen, it has been clearly mentioned in review of siddha literature. No any adverse effect of study drugs. All the patients were advised to exercise regularly. The observation made during the clinical study shows that the main drugs SARVANGAVATHA CHOORANAM is conductive.

## CONCLUSION

Now a days Santhuvatham is more common causing social burden to families. The physiochemical and phytochemical analysis reveals that the trial drug contains important constiuents which have beneficiary effects in arthritis.

The Toxicological studies reveal that the trial drug did not produce any toxicity in rat models. The Preclinical studies reveals that the trial drug has anti inflammatory, antianalgesic action. The clinical study shows significant decrease in the symptoms of the disease. The trial drug gives a good confidence in the management of Santhuvatham and economicaly very low cost. No contra indications was noted during the course of treatment. Finally the author conclude that the trial drug SARVANGAVATHA CHOORANAM and MUKKUTU YENNAI with Combined therapy (Ottradam) is effective in SANTHUVATHAM. For more results further studies should be continued in this.

## PREPARATION AND PROPERTIES OF THE TRIAL DRUG

## INTERNAL DRUG: SARVANGAVATHA CHOORANAM

| DRUG | BOTANICAL NAME | PART USED | DOSE |
|---|---|---|---|
| Mavilingam | Crataeva religiosa | Bark | 35g |
| Kondrai | Cassia fistula | Bark | 35g |
| Chitiramoolam | Plumbago indica | Root | 35g |
| Kandakathari | Solanaum xanthocarpum | Root | 35g |
| Sangam | Clerodendrum inerme | Root | 35g |
| Vathamadakki | Clerodendrum phlomidis | Root | 35g |
| Boothakarapan | Sterculia foetida | Bark | 35g |
| Indhuppu | Sodium chloride impure/Rock salt | - | 35g |
| Thuthuvalai | Solanum trilobatum | Whole plant | 35g |
| Velarugu | Enicostema axillare | Root | 35g |
| Kayam | Ferula asafoetida | Resin | 35g |
| Chukku | Zingeber officinale | Rhizome | 35g |
| Valayaluppu | Glassgall/selvitri | - | 35g |
| Vediuppu | Potassium nitrate/salt petre | - | 35g |
| Kaluppu | Himalyan crystal salt | - | 35g |

Reference : Sigicharatna deepam part 2 vaithiya sindhamani(pg.no)164

DOSE : 800mg -1000mg Twice a day

ADJUVANT : Hot water

DURATION : 30 to 40days

## STANDARD OPERATING PROCEDURE

### Source of raw drugs

The required drugs for preparation of SARVANGAVATHA CHOORANAM (internal) and MUKKUTU YENNAI (external) would be purchased from a well reputed country shop and standardized before preparing medicines. This raw drug would be authenticate and then they were purified and the medicines were prepared in Gunapadam laboratory of Government Siddha Medical College, Palayamkottai.

### PURIFICATION OF RAW DRUGS:

**Induppu**

Induppu dissolved in kaadi and filtered then dried in sunlight.

**Vedi uppu**

Vediuppu dissolved in cow`s urine or lemon juice and then dried in sunlight.

**Valayal uppu**

Valayaluppu dissolved in kaadi then dried in sunlight.

**Kalluppu**

Kalluppu dissolved in kaadi and filtered then dried in sunlight.

**Chukku**

Chukku soaked in lime water and then dried.

**Perungayam**

It is fried and then powdered

**Chitramoola pattai**

Remove the inner nerves of bark and take only the outer bark. Powder the bark. Take milk in a pot and upper part of the pot was tied with a cotton cloth (eadu). Bark powder is placed above the cloth and then closed by another pot. Boil 3 hours and take the powder and dry it.

**Kontraipattai, Mavilingapattai, Poothakarappanpattai:**

**(common purification method for bark)**

Remove outer bark layer.

**Kandankathiriver, Sangamver, Vadhamadakiver**

**(Common purification method for root)**

Roots are washed with river water.

**Thuthulai, Vellarugu**

Dried on the sunlight.

**Preparation:**

Purified raw drugs are taken & they are dried in shade and made into powder it separately and mix well.

**Drug storage:**

The trial drug **SARVANGA VATHA CHOORANAM** is stored in clean dry air tight container & it is dispensed to the patients in packets.

**EXTERNAL MEDICINE**

**MUKKUTU YENNAI**

Ref: Varma marundhu seimuraigal (pg:no:374)

**Ingredients:**

| DRUG | BOTANICAL NAME | PART USED | DOSE |
|---|---|---|---|
| Kurundhotti | Sida rhombifolia | Root | 875g |
| Aavin nei | Ghee | - | 650ml |
| Erandam | Riccinus comminus | Oil | 650ml |
| Nalla ennai | Sesamum indicum | Oil | 650ml |
| Porigaram | Sodium biborate | - | 51g |
| Vembadampattai | Ventilago maderaspatana | Bark | 51g |
| Manjal melugu | Bee wax | Wax | 51g |

**PREPARATION :**

Make decoction of kurundhotti ver with water and add ghee, erandathuennai and nalla ennai to that decoction and boil it again and then add vembadampattai, porigaram and manjal melugu to it and filtered after it gets melugu consistance. It can be used as an external application which cure all vadha diseases.

**DRUG STORAGE:**

The trial drug is stored in clean dry air tight container and it is given to the patients in disposable pet bottles.

**EXTERNAL THERAPY**

**NOCHI ELAI OTRADAM**

**INGREDIENTS:**

1.Nochi elai

2.Thavidu

**PREPARATION**

Take equal amount of nochi elai, thavidu are fried & Fomented on the painfull area. It cures santhuvatham and some vatha diseases.

**GUNAPADAM ASPECT**

**INTERNAL MEDICINE : SARVANGAVATHA CHOORANAM**

1. **கொன்றை பட்டை**(Kondrai pattai)

| **கொன்றை பட்டை**(Kondrai pattai) | |
|---|---|
| Botanical Name | Cassia fistula |
| Family | Caesalpiniaceae |
| Part used | Bark |
| Other name | கொன்றை கொண்ணை பெருங்கொன்றை கிருதாமலம், தாமம், மதலை, இதழி, கடுக்கை, ஆக்குவதம் |
| சுவை | கைப்பு, துவர்ப்பு |
| தன்மை | வெப்பம் |
| பிரிவு | கார்ப்பு |
| செய்கை | மலமிளக்கி, துவர்ப்பி, எரிச்சல் உண்டாக்கி |
| Phytochemicals | Anthraquinone,Tanin, Emodin, Phlobaphenes, Chrysophanic acid. |

**குணம்** (P:No:401)

"குட்டங் கிருமி கொடுஞ்சூலை வாதமையம்
துட்ட மலமருசி துரரப்போம் -தட்டிச்
சுரக்கின்ற பேதியுண்டாம் துய்க்கத் துவர்க்கும்
சரக்கொன்றைக் காரணங்கே ! சாற்று "

**- அகத்தியர் குணவாகடம்**

பெருநோய், புழு, சூலை, முக்குற்றம், செரியாமைஆகியவை போம் இது கழியச் செய்யும்

**2.மாவிலிங்கப்பட்டை**( Mavilinga pattai)

| **மாவிலிங்கப்பட்டை**( Mavilinga pattai) | |
|---|---|
| Botanical Name | Crateva magna |
| Family | Caesalpiniaceae |
| Part used | Bark |
| Other name | மாவிலங்கு, குமாரகம், வரணி |
| சுவை | கைப்பு |
| தன்மை | வெப்பம் |
| பிரிவு | கார்ப்பு |
| **செய்கை** | தடிப்புண்டாக்கி, மலமிளக்கி, கற்கரைச்சி |
| Phytochemicals | Saponin, Tanin, Alkaloid, Coumarins, Steroids. |

**குணம்**

”சுரங்கடியின் றோடந் தொலையாத வாதம்
உரம்பெறு விடங்க ளொழியும் - அரமுங்
கருமா வடுவயிலும் கண்டஞ்சுங் கண்ணாய்
ஒருமாவி லிங்குக் குரை”

**- அகத்தியர் குணவாகடம்**

சுரம், காணாக்கடி, பாம்புக்கடி நஞ்சுகளும் தீராத வளிநோய்களும் போம்

**பட்டை:** மாவிலங்கப் பட்டையினால் வாதமொடு சன்னிகளும்
பரவுகின்ற கல்லடைப்பும் பாறுமே

**- அகத்தியர் குணவாகடம்**

வளி நோய்கள், முப்பிணி, கல்லடைப்பு இவைகள் போகும்.

**3.சித்திர மூலப்பட்டை**( Chithramoola Pattai)

| **சித்திர மூலப்பட்டை**( Chithramoola Pattai) | |
|---|---|
| Botanical Name | Plumbago Zeylanica |
| Family | Plumbaginaceae |
| Part used | Bark |
| Other name | சித்திரமூலி, கொடிச்சிகொடுவேலி, சித்திரமூலம், சித்திரம், சித்திரகம், |
| சுவை | கார்ப்பு, விறுவிறுப்பு |
| தன்மை | வெப்பம் |
| பிரிவு | கார்ப்பு |
| செய்கை | வியர்வையுண்டாக்கி ,முறைவெப்பகற்றி |
| Phytochemicals | Plumbagin, Terpenoids, Alkaloids, Tanin. |

**குணம் -** “கட்டிவிர ணங்கிரந்தி கால்கள் அரையாப்புக்
கட்டிச்சூ லைவீக்கங் காழ்மூலம்- முட்டிரத்தக்
கட்டுநீ ரேற்றங் கனத்த பெருவயிறும்
அட்டுங் கொடிவேலி யாம்”.

**- அகத்தியர் குணவாகடம்**

கட்டி,புண்,கழலை, வளிநோய், அரையாப்புக்கட்டி, குத்தல், சோபை, மூலரோகம், உதிரக்கட்டு, நீரேற்றம், பெருவயிறு இவைபோம்

“கட்டியே சூலைக்கட்டு கருதிடு குறிப்புண் கிரந்தி
ஒட்டுமே கரணத்தோடு முறுமரை யாப்பு மன்றி
நெறிச்சு ரம்பின் வியன்விட மச்சு ரந்தான்
பொட்டெனப் பறந்து போகும் புகழ்கொடி வேலி கண்டால்”

சூலைக்கட்டு, குறிப்புண், கிரந்தி, மேகப்புண், நெறிச்சுரம், நச்சுசுரம் தீரும். **(ஏடு)**

**4.கண்டங்கத்திரி வேர்**( Kantankathiri Ver )

| **கண்டங்கத்திரி வேர்** ( Kantankathiri Ver ) | |
|---|---|
| Botanical Name | Solanum Surattense |
| Family | Solanaceae |
| Part used | Bark |
| சுவை | கார்ப்பு |
| தன்மை | வெப்பம் |
| பிரிவு | கார்ப்பு |
| செய்கை | கோழையகற்றி,சிறுநீர்பெருக்கி, அகட்டுவாய்வகற்றி |
| Phytochemicals | Solonocarpine, Carpesterol, Solasomine, Solacarpidin. |

**குணம்**

"காச சுவாசங் கதித்தஷய மந்தமனல்
வீசுசுரஞ் சன்னி விளைதோடம் - ஆசுறுங்கால்
இத்தரையு ணிற்கா எரிகாரஞ் சேர்க்கண்டங்
கத்தரியுண் டாமாகிற் காண்".

**- அகத்தியர் குணவாகடம்**

காசம்,சுவாசம், ஷயம், அக்னிமந்தம், தீச்சுரம், சன்னிவாதம், ஏழுவகைத் தோடங்கள், வாதநோய் அகியவை போம்.

**5. சங்கம் வேர்** ( Sangam Ver)

| **சங்கம் வேர்** ( Sangam Ver) | |
|---|---|
| Botanical Name | Azima tetracantha |
| Family | Salvadoraceae |
| Part used | Root |
| Other name | சங்கஞ்செடி, நற்சங்கன், முட்சங்கன் |
| சுவை | கைப்பு |
| தன்மை | வெப்பம் |
| பிரிவு | கார்ப்பு |
| செய்கை | வெப்பமுண்டாக்கி, கோழையகற்றி, சிறுநீர்பெருக்கி, துவர்ப்பி, உரமாக்கி, முறைவெப்பகற்றி |
| Phytochemicals | Azimine, Coumarins, Saponins, Tanin, Resin, Steroids. |

**குணம்**

"வீக்கம் கரப்பான் விதாகம் கிரந்திகுன்மம்
ஊக்கமிகு சூலைவாய் வோடுபித்தத் -தாக்குவிடம்
வீறுமோ கண்துலங்கும் வீசுபசி ரத்தமுண்டாம்
கூறுசங்ம் வேரிலை கட்கு".

**- அகத்தியர் குணவாகடம்**

சோபை, கரப்பான், வெப்பம், கழலை, குன்மம், கீல்வீக்கம், வாதகோபம், பித்தநோய், பலநஞ்சுகள் இவை நீங்கும். கண்துலக்கமும் மிகுதியும் குருதி பெருக்கும் உண்டாக்கும்.

**6. வாதமடக்கி வேர்:-** ( Vadhamadaki Ver)

| **வாதமடக்கி வேர்:-**( Vadhamadaki Ver) | |
|---|---|
| Botanical Name | Clerodendrum Phlomidis |
| Family | Verbenaceae |
| Part used | Root |
| Other name | தக்காரி, தழுதாழை, நத்தக்காரி |
| சுவை | கைப்பு, துவர்ப்பு |
| தன்மை | வெப்பம் |
| பிரிவு | கார்ப்பு |
| செய்கை | உடற்றேற்றி, துவர்ப்பி |
| Phytochemicals | Clerodin, Clerodendrin, Clerosterol, Saponins. |

**குணம்:-**

"வாதப் பிடிப்பென்ற வற்காலி யைப்புலிபோற்
போதப் பிடிக்கும் புலவற்றோ -காத
அழுதாழைப் பீனச்தை யுண்டா தகற்றுச்
தழுதாழைப் பன்னமது தான்".

"சேர்ந்த சொறிசிரங்குஞ் சேர்வாதம் எண்பதும் போம்
ஆய்ந்திடிற் பித்தம் அதிகரிக்கும் -மாந்தமறும்
ஐயின் சுரந்தணியும் ஆனதழு தாழைக்கு
மெய்யின் கடுப்பும்போம் விள்".

**- அகத்தியர் குணவாகடம்**

பக்கவாத முதலிய 80 வளிநோய்கள் மூக்கடைப்பு நோய்கள் புடை, கழலை, ஐயசுரம், குடைச்சல் இவை நீங்கும் ஆனால் அழலை உண்டாக்கும்.

**7.பூதகரப்பான் பட்டை**( poothakarappan Pattai)

| **பூதகரப்பான் பட்டை**( poothakarappan Pattai) | |
|---|---|
| Botanical Name | Sterculia foetida |
| Family | Sterculiacea |
| Part used | Bark |
| Other name | பெருமரம் |
| சுவை | கைப்பு |
| தன்மை | வெப்பம் |
| பிரிவு | கார்ப்பு |
| செய்கை | மலமிளக்கி, வியர்வைப்பெருக்கி |
| Phytochemicals | Alkaloids , Glycosides, Tanin , Sapnin Steroids. |

**குணம்:-**

"பெருமரப் பட்டையது பேதி கிராணி
மருவிரத்த நோயினத்தை மாற்றுந் - திருவே
நடலைபுரி வாதத்தை நாடாத கற்றும்
உடலையிரட் சிக்குமென வோது"

**- அகத்தியர் குணவாகடம்**

கழிச்சல் நோய்களும் வயிற்றைப் பற்றிய நோய்களும் குருதி நோய்களும் வளிக்குற்ற பெருக்கால் வரும் நேய்களும் போம் இது உடலை வளர்க்கும்.

**8. பெருங்காயம்**(Perungayam)

| **பெருங்காயம்**(perungayam) | |
|---|---|
| Botanical Name | Sterculia foetida |
| Family | Umbelliferae |
| Part used | Gum resin |
| Other name | அத்தியாகிரகம், இங்கு, கிரணம், இராமடம், கந்தி, காயம், சந்துநாசம், பூதநாசம், வல்லீகம் |
| சுவை | கைப்பு, கரகரப்பு |
| தன்மை | வெப்பம் |
| பிரிவு | கார்ப்பு |
| செய்கை | வெப்பமுண்டாக்கி, இசிவகற்றி, கோழையகற்றி, மலமிளக்கி, புழுக்கொல்லி, சிறுநீர்பெருக்கி அகட்டுவாய்வகற்றி. |
| Phytochemicals | Ferulic acid, Asareinotamol, Umbelliferone, Butyl disulfide |

**குணம்**

”தந்தவே தந்த மூலத்தெழும் பிணி
சருவகாளம் விருச்சிகங்கீடம்மா
மந்தம்வாதம் உதரவர்த்தம் அல்குல்நோய்
மார்பணங்கட்ட குன்மம் மகோதரம்
உந்துகெர்ப்பத்தின் வித்திரஞ் சூலைச்சூர்
உதிரப்பூச்சி சிலேத்துமத்துறும் வலி
வந்த மெய்கடுப் போடிவை முற்றுமே
மாயுநாறுநற் காயங்கிடைக்கினே”

பல், பல்லடி நோய்கள், பாம்பு நஞ்சு , தோல் நஞ்சு, மந்தம், ஏப்பம், வாதம், சூதகவாயு குன்மம், பெருவயிறு சூதகச்சூலை. குருதியிலுள்ள நுண்புழு ஐயத்தால் பிறந்த வலிகள் உடல்கடுப்பு என்னும் இவைகள் போம்.

**9. வெள்ளறுகு**(Vellarugu)

| **வெள்ளறுகு**(Vellarugu) | |
|---|---|
| Botanical Name | Enicostemma axillare |
| Family | Gentianaceae |
| Part used | Whole plant |
| Other name | வல்லாரி |
| சுவை | கைப்பு |
| தன்மை | வெப்பம் |
| பிரிவு | கார்ப்பு |
| செய்கை | பசித்தீத்தூண்டி, உரமாக்கி, உடற்றேற்றி, மலமிளக்கி, வெப்பகற்றி |
| Phytochemicals | Enicoflavin, Catechins, Triterpenoids. |

**குணம்**

“குன்மமொடு வாய்வு குடல்வாதம் சூலையிவை
சென்மம்விட் டோடிச் சிதையுங்காண் - வன்முலையாய்
உள்ளுறுகி ரந்திசொறி யொட்டிய சிரங்குமறும்
வெள்ளறுகு தன்னை விரும்பு”.

**- அகத்தியர் குணவாகடம்**

குன்மம்,வளிநோய், குடல்வாயு, கீல் பிடிப்பு, நரம்புகளைப் பற்றிய கழலை. தினவு, சிறுசிரங்கு ஆகியவை போம்.

**10. துாதுவளை** (Thuthuvalai)

| **துாதுவளை** (Thuthuvalai) | |
|---|---|
| Botanical Name | Solanum Trilobatum |
| Family | Solanaceae |
| Part used | Whole plant |
| Other name | அளர்க்கம், சிங்கவல்லி |
| சுவை | சிறுகைப்பு |
| தன்மை | வெப்பம் |
| பிரிவு | கார்ப்பு |
| செய்கை | வெப்பமுண்டாக்கி, கோழையகற்றி, உரமாக்கி. |
| Phytochemicals | Hyoscyamine, Solanine, Solasodin. |

**குணம்**

”துாதுபத்திரி யூண்சுவை யாக்கும் பூ
தாது வைத்தழைப் பித்திடும் காயது
வாத பித்தக பத்தையு மாற்றுவேர்
ஓதும் வல்லிபன் நோயுமொ ழிக்குமே”

- தேரையர் குணவாகடம்

இலை - உண்டிக்கு சுவையைத் தரும்

பூ - ஆண்மையைப் பெருக்கும்

காய் - முக்குற்றங்களையும் நீக்கும்

வேர், கொடி - இருமல் இரைப்பு முதலிய ஐயப்பிணிகளை போக்கும்.

**11.சுக்கு**(Chukku)

| **சுக்கு**(Chukku) | |
|---|---|
| Botanical Name | Zingiber Officinale |
| Family | Zingiberaceae |
| Part used | Dried rhizome |
| Other name | அருக்கன், உபகுல்லம், உலர்ந்தஇஞ்சி, சுண்டி, நவசுறு, நாகரம், விடமூடிய அமிர்தம், வேர்கொம்பு. |
| சுவை | கார்ப்பு |
| தன்மை | வெப்பம் |
| பிரிவு | கார்ப்பு |
| செய்கை | வெப்பமுண்டாக்கி, பசித்தீத்தூண்டி, அகட்டுவாய்வகற்றி |
| Phytochemicals | Phellandrene, Gingerol, Gingerine, Terpene, Tanin. |

**குணம்**

செரியாமை, மார்பெரிச்சல், புளியேப்பம், வெப்பம், கீழ்வாய் நோய், இரைப்பு, இருமல்,
கழிச்சல், நீரேற்றம், குன்மம், வயிற்றுப்பிசம், காதுகுத்தல்,முகநோய், தலைநோய், குலைவலி, பாண்டு, வயிற்றுக் குத்தல், ஐயசுரம் போம்.

"சூலைமந்தம் நெஞ்செரிப்பு தோடமேப் பம்மழலை
மூலம் இரைப்பிருமல் மூக்குநீர் - வாலகப
தோடமதி சாரந் தொடர்வாத குன்மநீர்
தோடம்ஆ மம்போக்குஞ் சுக்கு".

- அகத்தியர் குணவாகடம்

"வாதப் பிணிவயி றுதழ் செவிவாய்
வலிதலை வலிகுலை வலியிரு விழிநீர்
சீதத் தொருவரி பேதிப் பலரோ
சிகமலி முகமக முகமிடி கபமார்
சீத சுரம்விரி பேதச் சுரநோய்
தெறிபடுமெனமொழி குவர்புவி தனிலே
ஈதுக் குதவுமி தீதுக குதவா
தெனும்விதி யிலைநவ சுறுகுண முனவே"

- தேரையர் குணவாகடம்

**12.இந்துப்பு** (Induppu)

| **இந்துப்பு**(Induppu) | |
|---|---|
| Chemical name | Sodium Chloride impura (Rock Salt) |
| Other name | சைந்தவம், சிந்தூரம், சந்திரனுப்பு, மதிகூர்மை, மதியுப்பு, மிந்தாச்சொல். |
| **செய்கை** | மலகாரி, அகட்டுவாய்வகற்றி, சிறுநீர்பெருக்கி, பசிதீத்தூண்டி |

**குணம்**

"அட்டகுன்ம மந்தம் அசீர்க்கரஞ்சூர் சீதபித்தந்
துட்டவையம் நாடிப்புண் டோடங்கள் - கெட்டமலக்
கட்டு விட விந்தையக் காமியநோய் வன்கரப்பான்
விட்டு விட விந்துப்பை விள்".

"சென்னிக் கண்ணா பற்றூர் செவிகவுள் கண் டம்பகநோய்
சந்தியா சங்காசந் தாகமிரைப் - புன்னிரத்த
மூலஞ் சிலந்திநளி மூடிகநஞ் சூதை வலி
சூலஞ் சிதையுமிந்தாற் சொல்".

எண்வித குன்மம், அலசம், அசிர்கரம், கபபித்தம், கபாதிக்கம், நரம்புக்கிரந்தி, திரிதோஷம், மலபந்தம், விஷம், சுக்கிலம், கப உபதம்சம், கடுவன் ஆகிய நோய்கள், தலை வழி, நா, தந்தமூலம், தாது, கன்னம், கண்டம்,யோனி இவ்விடத்து நோய்கள், சந்தியாசம், நேத்திரகாசம், தாகம், சுவாசம், இரத்தமூலம் முதலிய பணிகள், சிலந்தி, தேள், எலி இவற்றின் விஷங்கள், வாதகடுப்பு, சூலை முதலியன நீங்கும்.

### 13. **வெடியுப்பு** (Vedi uppu)

| **வெடியுப்பு** (Vedi uppu) | |
|---|---|
| Chemical name | Sodium Chloride impura (Rock Salt) |
| Other name | பொட்டிலுப்பு, இணங்கண், படைராசன், பூமிகூர்மை, நவாச்சார மித்ரு. |
| **செய்கை** | குளிர்ச்சி உண்டாக்கி, வியர்வைப்பெருக்கி, சிறுநீர்ப்பெருக்கி |

**குணம்**

”மல்லாரு மட்டகுன்ம மாதருத ரக்கட்டி
கல்லா மதைப்புநீர்க் கட்டருக - லெல்லாமே
கம்பிகம்பி யென்றுங் கருவுண்டா மங்கி நின்ற
கம்பி கம்பி யென்றுரைக்குங் கால்”.

இதுவுமது

“சூதக வாயுவொடு சோணிதத்தின் வாதமும் போம்
வாதவலி குன்மமிவை மாறுங்காண் - மீதாங்
கொடிய வயிறிழியுங் கோழைகப மேகும்
வெடியுப்புத் தன்னை விளம்பு”.

எண்வித குன்மம், கருப்பாசயக் கட்டி, சோபை, மூத்திரக்கிரீச்சரம், நீர்சுருக்கு, சூதிகாவாதம், வாதசோணிதம், சாமானிய வாத பித்த கப குன்மங்கள், பெருவயிறு,ஈளை, கபதோடம், இவை ஒழியும், பேரிளம் பெண்பருவம் கடந்த மாதர்கட்கும் கருப்பம் உண்டாகும்.

சுரம், வீக்கம், கீல்வாதம், இரத்த பித்தம், பிரமேகம், கண்ணோய், தொண்டை விரணம், சுவாசகாசம் முதலியனவும் நீங்கும்.

### 14. **வளையல் உப்பு** (Valayal uppu)

**குணம்**

”துளையார் குடல்வாதத் தொந்தவா தத்தோ
டிளையாச் சுவாசமறு மின்னும் - வளையலுப்பாற்
குன் மவலி சூலைவெப்பங் கூறாப்பி லீகமிவை
சென்மம்விட் டோடுமெனத் தேர்”.

குடல் வாதம், வாத பித்தம், இரைப்பு, வயிற்றுவலி, கீல்பிடிப்பு, சுரம், பீலீகம் முதலியன நீங்கும்.

**15. கல்லுப்பு** (Kalluppu)

| **கல்லுப்பு** (Kalluppu) | |
|---|---|
| Chemical name | Sodium Chloride (Common Salt) |
| Other name | கடற்குருவி |

**குணம்**

"ஐயமறுஞ் சூலை யரோசிபித்தஞ் சத்தியொடு
வெய்யபிணி யட்டகுன்மம் விட்டேகும் - பெய்வளையே
வாதமதி தாகம் மலக்கட்டும் போமுலகிற்
கோதறுகல் லுப்பைக் கொடு".

கல்லுப்பினால் கபம், குத்தல், அருசி, பித்தம், வாந்தி, உஷ்ணவாயு, எண்விதகுன்மம், வாதநோய், நாவறட்சி முதலியவை நீங்கும்.

SARVANGA VATHA CHOORANAM - INGREDIENTS

(INTERNAL MEDICINE)

பூதகரப்பான் பட்டை

வாதமடக்கி வேர்

வெள்ளருகு

தூதுவளை

சுக்கு

மாவிலிங்கம் பட்டை

கண்டங்கத்திரி வேர்

பெருங்காயம்

வளையலுப்பு

கொன்றைப் பட்டை

சித்திரமூலம் வேர்

கல்லுப்பு

சங்கம் வேர்

வெடியுப்பு

இந்துப்பு

சர்வாங்க வாத சூரணம்

## EXTERNAL MEDICINE -MUKKUTU YENNAI

**Ingredients:**

**1.Tamil Name: kurundhotti:**

Botanical Name : Sida rhombifolia

Family : Malvaceae

Part Used : Root

Suvai : Thuvarppu

Thanmai : Thatpam

Pirivu : Inippu

Seigai : Emolient

**Chemical Constituents:** Ephedrine, Fatty acid, Mucin, Resin, Hypaphorine, Vasicinone, Vasicine, Vasicinol, Choline, Betain, Phytosterol.

**பொதுகுணம்**:

அத்தி சுரமதுல் ஆனந்தசுரம் பித்தமும் போம்
மெத்த விழக்கொளியாம் வீறுதயி – லத்திற்காம்
நற்றா மரைத்திருவு நாடு மெழிற்றிருவே !
சிற்றாமுட் டித்துரைச் செப்பு.

**2.Tamil Name : Aavin nei**

**Constituents**

volatile oil, asarone, phenylindane derivative, phenyl propane derivative.

**Action**

- Stimulant
- Emetic
- Antispasmodic
- Carminative
- Nervine sedative

**பொதுகுணம்**

‘தாகமுடி லைசுட்கம் வாந்தி பித்தம் வாயுபிர
மேகம் வயிற்றெரிவு விக்கலழல் - மாகாசங்
குன்மம் வறட்சி குடற்புரட்ட லஸ்திசுட்களஞ்
சொன்மூலம் போக்கு நிறைத்துப்பு’

**3.Tamil name: Nallennai**

| | | |
|---|---|---|
| Botanical name | : | Sesamum indicum |
| Family | : | Pedaliaceae |
| Part used | : | Oil |
| Suvai | : | Inippu |
| Thanmai | : | veppam |
| Pirivu | : | Inippu |

**Constituents:**

Oleic and Linoleic acid, Solid fats, Palmitin and Mysitin.

**Action**

- Emolient
- Tonic
- Laxative

**பொதுகுணம்** :

புத்திநயனக்குளிர்ச்சி பூரிப்பு மெய்ப்புளகஞ்
சத்துவங் கந்தி தனியிளமை – மெத்தவுண்டாங்
கண்ணொய் செவிநொய் கபாலவழல் காசநொய்
புண்ணொய்பொ டிமண்ணெய்யாற் பொற்று.

**4.Tamil name; Erandathu yennai**

| | | |
|---|---|---|
| Botanical name | : | Jatropa curcas |
| Family | : | Euphorbiaceae |
| Part used | : | Seed |
| Suvai | : | Kaippu |
| Thanmai | : | Veppam |
| Pirivu | : | karppu |

**Constituents:**

Phytosterols, Fixed oil, Fats, Enzymes amylase, Lipase, Oleic, Linoleic, Myristic, Palmitic, Stearic, Arachidonic acids and Sitosterol.

**Action**

- Laxative
- Antivatha
- Emolient

**பொதுகுணம்** :

வாதத் தொடக்கை வரவொட்டா மற்பழக்குக்
காதத்துக் கப்பாற் கடியுமே - சூதத்தைப்
பேரண்டப் பந்திக்கும் பேதிக்கு நோய்க்காட்டை
யேரண்ட மென்பதினியே.

**5.Tamil name : Porigaram**

| | | |
|---|---|---|
| Botanical name | : | Borax |
| Suvai | : | Inippu, Thuvarppu |
| Thanmai | : | veppam |
| Pirivu | : | Thuvarppu |

**Action**

- Alterative
- Antiseptic
- Resolvent

**பொதுகுணம்**:

‘சொறிபுடை யெண் குன்மநமை சோரியாசம்
பறிகிரகணி கல்லானம் பன்னோய் - நெறியைத்
தடங்கணங்க பங்கிருமி சர்ப்பவிடஞ் சந்நி
யிடங்கணங்க லக்கிற்போ மெண்’

**6. Tamil name : Manjal melugu**

| | | |
|---|---|---|
| English name | : | Cera wax |
| Action | : | Demulcent |

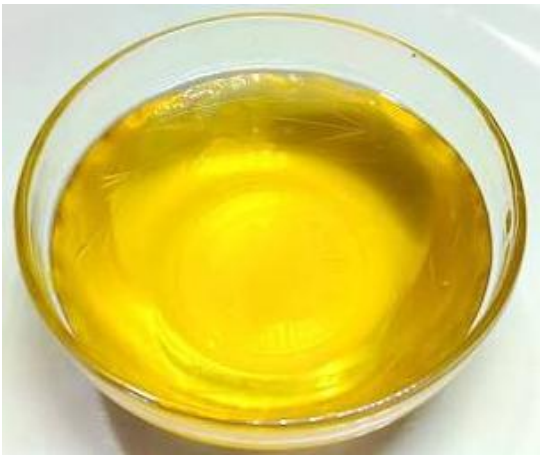
**பொதுகுணம்**

‘அறைபக்க வரத மதைப்பைய மூதைப்பைய மூதை
குறைவிந்தி தழ்நோய் தேள்கூளி – கறையைப்
புழுகெடுக்க வங்கமுறு புண்ணிடிப்புண் டீப்புண்
மெழுகெடுக்க வாய்கலு மெய்’

**7. Tamil name: Vembadampattai**

| | |
|---|---|
| Botanical name | :Ventilago maderaspatana |
| Family | : Rhamnaceae |
| Part used | : Bark |
| Constituents | : Flavanoids, Tannins, |
| Action | :Antidiabetic, Antihyperlipidemia, Antioxidant, Antiulcer, Carminative. |

நல்லெண்ணெய்



ஆமணக்கெண்ணெய்

மஞ்சள்மெழுகு

ஆவின் நெய்

குறுந்தொட்டி


வேம்பாடம்பட்டை

பொரிகாரம்

முக்கூட்டு எண்ணெய்

## EXTERNAL THERAPY

**Notchi Elai Ottradam:**

**1. Tamil name –Nochi**

Botanical name - Vitex negundo

Family - Lamiaceae

Part used - Leaf

**Action**

- Analgesic
- Anti-inflammatory
- Antimicrobial
- Carminative
- Muscle relaxant

**Uses:** Relieves in pain and inflammation of muscles and joints.

Used as fomentation in sprains, rheumatism, swelled testicles, contusions.

**2. Tamil name –Thaviddu**

English Name : Bran

Action : Antinflammatory, Analgesics.

Uses :Reduce pain and inflammation

தவிடு

நொச்சி இலை

## BIO – CHEMICAL ANALYSIS

## BIO – CHEMICAL ANALYSIS OF SARVANGAVATHA CHOORANAM

**PREPARATION OF THE EXTRACT:**

5gms of the drug was weighed accurately and placed in a 250ml clean beaker then 50ml distilled water is added and dissolved well. Then it is boiled well for about 10 minutes. It is cooled and filtered in a 100ml volumetric flask and then it is made to 100ml with distilled water. This fluid is taken for analysis.

**QUALITATIVE ANALYSIS**

| S. No | EXPERIMENT | OBSERVATION | INFERENCE |
|---|---|---|---|
| 01 | **TEST FOR CALCIUM**<br>2ml of the above prepared extract is taken in a clean test tube. To this add 2ml of 4% Ammonium oxalate solution | A white precipitate is formed | Indicates the presence of Calcium |
| 02 | **TEST FOR SULPHATE**<br>2ml of the extract is added to 5% Barium chloride solution. | A white precipitate is formed | Indicates the presence of Sulphate |
| 03 | **TEST FOR CHLORIDE**<br>The extract is treated with silver nitrate solution | A white precipitate is formed | Indicates the presence of Chloride |
| 04 | **TEST FOR CARBONATE**<br>The substance is treated with concentrated hcl. | No brick effervescence is formed | Absence of Carbonate |
| 05 | **TEST FOR STARCH**<br>The extract is added with weak iodine solution | Blue colour is formed | Indicates the presence of Starch |
| 06 | **TEST FOR FERRIC IRON**<br>The extract is acidified with Glacial acetic acid and potassium ferro cyanide. | No blue colour is formed | Absence of Ferric iron |
| 07 | **TEST FOR FERROUS IRON**<br>The extract is treated with concentrated Nitric acid and Ammonium thiocyanate solution | Blood red colour is formed | Indicated the presence of Ferrous iron |

| | | | |
|---|---|---|---|
| 08 | **TEST FOR PHOSPHATE**<br>The extract is treated with Ammonium Molybdate and concentrated nitric acid | No yellow precipitate is formed | Absence of phosphate |
| 09 | **TEST FOR ALBUMIN**<br>The extract is treated with Esbach's reagent | No yellow colour precipitate is formed | Absence of Albumin |
| 10 | **TEST FOR TANNIC ACID**<br>The extract is treated with ferric chloride. | No blue black colour precipitate is formed | Absence of tannic acid |
| 11 | **TEST FOR UNSATURATION**<br>Potassium permanganate solution is added to the extract | It gets decolourised | Indicates the presence of Unsaturated compound |
| 12 | **TEST FOR THE REDUCING SUGAR**<br>5ml of Benedict's qualitative solution is taken in a test tube and allowed to boil for 2 minutes and add 8-10 drops of the extract and again boil it for 2 minutes. | No Colour change occurs | Absence of Reducing sugar |
| 13 | **TEST FOR AMINO ACID**<br>One or two drops of the extract is placed on a filter paper and dried well. After drying, 1% Ninhydrin is sprayed over the same and dried it well. | Violet colour is formed | Indicates the presence of Amino acids |
| 14 | **TEST FOR ZINC**<br>The extract is treated with Potassium Ferro cyanide. | No white precipitate is formed | Absence of Zinc |

**Inference:**

The given sample of "SARVANGAVATHA CHOORANAM" contains calcium, sulphate, chloride, Starch, Ferrous iron, unsaturated compound and amino acid.

## FOURIER TRANSFORM INFRARED SPECTROSCOPY

### AIM

To evaluate the FTIR characterization of sarvangavatha chooranam

### PROCEDURE

Fourier transform infrared spectroscopy it is important and more advanced technique. It is used to identify the functional group to determine the quality and consistency of the sample material and can determine the amount of compound present in the sample.

The FTIR- Infrared is passed from a source through a sample. This infrared is absorbed by the sample according to the chemical properties and some are transmitted. The spectrum that appears denotes the molecular absorption and transmission. It forms the molecular finger print of the sample. It is recorded as wavelength and the peaks seen in the spectrum indicate the amount of material present.

### RESULT

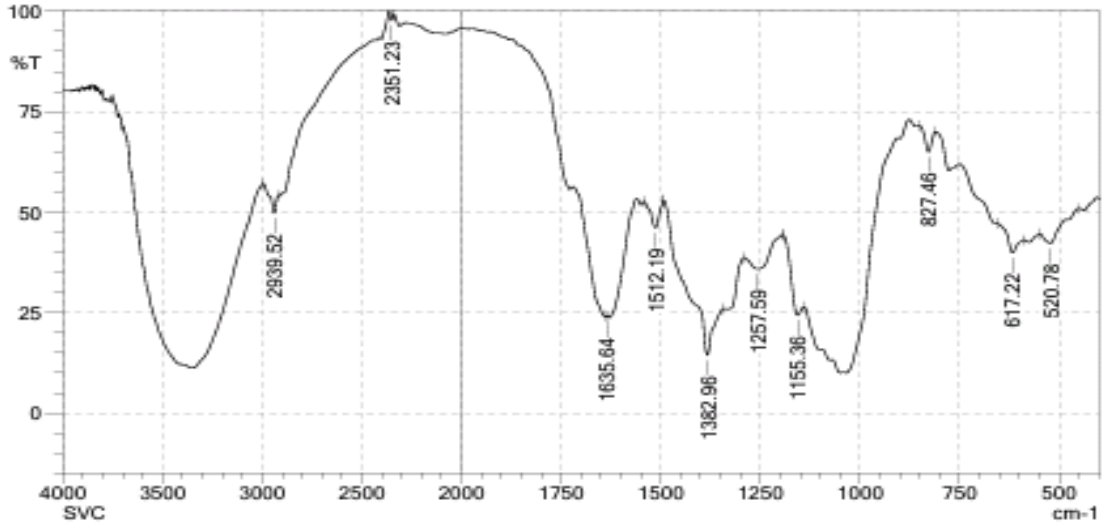


**Table 1.2**

**FTIR data interpretation of Sarvangavatha chooranam**

| **Wave number** | **Vibrational modes of Sarvangavatha Chooranam In IR region** | **Functional groups** |
|---|---|---|
| 520.78 | C-Br Strech | Halo compound |
| 617.22 | C-I Strech | Halo compound |
| 827.46 | C-H Bending | Halo compound |
| 1155.36 | C-F Strech | Fluoro compound |
| 1257.59 | C-O Stretch | Aromatic Ester |
| 1382.96 | O-H Bending | Phenol |
| 1512.19 | N-O Strech | Nitro compound |
| 1635.64 | N-H Bending | Amine |
| 2351.23 | C-Br Stretch | Halo Compound |
| 2939.52 | C-H Stretch | Alkane |

**INFERENCE**

FTIR spectra analysis indicates the presence of some organic functional groups such as Halo Compound, Fluoro compound, Aromatic Ester, Phenol, Nitro compound, Amine, Alkane respectively.

The presence of Amine commonly used as analgesics in medicine that relieves pain. The presence of aromatics are good pain relievers has anti-pyretic, anti-inflammatory, auto-immune activities. The presence of Halo compounds are used for treatment of typhoid fever. The presence of phenol is an active ingredient in some oral analgesics, likewise the presence of other these identified functional groups in the medicinal compound are also responsible for the therapeutic function of drug "Sarvangavatha Chooranam"

## ACUTE TOXICITY STUDY IN FEMALE WISTER RATS TO EVALUATE TOXICITY PROFILE OF SARVANGAVATHA CHOORANAM

**Table 1. Test substance details**

| | |
|---|---|
| Name of the test substance | **SARVANGAVATHA CHOORANAM** |
| Colour of the test substance | Brownish |
| Nature of the test substance | Powder |

**Table 2. Experimental protocol**

| | |
|---|---|
| Name of the study | Acute toxicity |
| Guideline followed. | OECD 423 method-acute toxic class method |
| Animals. | Healthy young adult female wister rats, nulliparous, non-pregnant |
| Body weig.ht | 150-200 g |
| Sex | Female |
| Administration of dose and volume | 2000 mg/kg in 200g body weight, single dose in 1 ml |
| Number of groups and animals | 5 groups and 3 animals in each group |
| Route of administration | Oral cavage (po) |
| Vechicle | Hot water |

**Table 3. Housing and feeding conditions**

| | |
|---|---|
| Room temperature | 22°C ± 3°C |
| Humidity | 40-60% |
| Light | 12h : 12h (light : dark cycle) |
| Feed | Standard laboratory animal food pellets with water ad libitum |

**Table 4. Study period and observation parameters**

| | |
|---|---|
| Initial once observation | First 30 minutes and periodically 24 h |
| Special attention | First 1-4 h after drug administration |
| Long term observation | Upto 14 days |
| Direct observation parameters | Tremors, convulsions, salivation, diarrhea, lethargy, sleep and coma. |
| Additional observation parameters | Skin and fur, eyes and mucous membrane, respiratory, circulatory, autonomic and central nervous systems, somato motor activity and behavior pattern etc. |

The time of death, if any, is recorded. (Complete observations: annexure I). After administration of the drug, food is withheld for a further 1-2 hours.

**Study procedure**

Acute oral toxicity was performed as per organization for economic co-operation for development (OECD) guideline 423 method. The **SARVANGAVATHA CHOORANAM** was administered in a single dose by tuberculin syringe. Animals are fasted 3 h prior to dosing (food was withheld for 3 h but not water). Following the period of fasting animals was weighed and test substance was administered orally at a dose of 100mg,250mg,500mg,1000mgand 2000mg/kg. After the **SARVANGAVATHA CHOORANAM** administration, food was withheld 2 h in mice. Animals are observed individually after at least once during the first 30 minutes, periodically during the first 24 hrs, with special attention given during the first 4 hrs, and daily thereafter, for a total of 14 days.

**REPORT**

**Toxicological evaluation of Sarvangavatha Chooranam:**

Table:5 Effect of **SARVANGAVATHA CHOORANAM** on acute toxicity test in mice.

| S.N | Response | Head | | Body | | Tail | |
|---|---|---|---|---|---|---|---|
| | | **Before** | **After** | **Before** | **After** | **Before** | **After** |
| 1 | Alertness | Normal | Normal | Normal | Normal | Normal | Normal |
| 2 | Grooming | Absent | Absent | Absent | Absent | Absent | Absent |
| 3 | Touch response | Absent | Absent | Absent | Absent | Absent | Absent |
| 4 | Torch response | Normal | Normal | Normal | Normal | Normal | Normal |
| 5 | Pain response | Normal | Normal | Normal | Normal | Normal | Normal |
| 6 | Tremors | Absent | Absent | Absent | Absent | Absent | Absent |
| 7 | Convulsion | Absent | Absent | Absent | Absent | Absent | Absent |
| 8 | Righting reflux | Normal | Normal | Normal | Normal | Normal | Normal |
| 9 | Gripping strength | Normal | Normal | Normal | Normal | Normal | Normal |
| 10 | Pinna reflux | Present | Present | Present | Present | Present | Present |
| 11 | Corneal reflux | Present | Present | Present | Present | Present | Present |
| 12 | Writhing | Absent | Absent | Absent | Absent | Absent | Absent |
| 13 | Pupils | Normal | Normal | Normal | Normal | Normal | Normal |
| 14 | Urination | Normal | Normal | Normal | Normal | Normal | Normal |
| 15 | Salivation | Normal | Normal | Normal | Normal | Normal | Normal |
| 16 | Skin colour | Normal | Normal | Normal | Normal | Normal | Normal |
| 17 | Lacrimation | Normal | Normal | Normal | Normal | Normal | Normal |

**Result:** From acute toxicity study it was observed that the administration of **SARVANGAVATHA CHOORANAM** to Female Wister rats did not induce drug-related toxicity and mortality in the animals up to 2000mg/kg in 200g female Wister rats. So No-Observed-Adverse-Effect- Level (NOAEL) of **SARVANGAVATHA CHOORANAM** is 2000 mg/kg equal to human dose

## DISCUSSION

**SARVANGAVATHA CHOORANAM** was administered single time at the doses of 100mg, 250mg, 500mg,1000mg and 2000mg/kg to female Wister rats and observed for consecutive 14 days after administration. Doses were selected based on the pilot study and literature review. All animals were observed daily once for any abnormal clinical signs. Weekly body weight and food consumption were recorded. No mortality was observed during the entire period of the study. Data obtained in this study indicated no significance physical and behavioral signs of any toxicity due to administration of **SARVANGAVATHA CHOORANAM** at the doses of 100mg, 250mg, 500mg,1000mg and 2000mg/kg to female Wister rats

At the 14th day, all animals were observed for functional and behavioral examination. In functional and behavioral examination, home cage activity, hand held activity were observed. Home cage activities like Body position, Respiration, Clonic involuntary movement, Tonic involuntary movement, Palpebral closure, Approach response, Touch response, Pinna reflex, Sound responses, Tail pinch response were observed. Handheld activities like Reactivity, Handling, Palpebral closure, Lacrimation, Salivation, Piloercetion, Papillary reflex, abdominal tone, Limb tone were observed. Functional and behavioral examination was normal in all treated groups. Food consumption of all treated animals was found normal as compared to normal group.

## SUMMARY & CONCLUSION:

### Summary:

The present study was conducted to know single dose toxicity of **SARVANGAVATHA CHOORANAM** on female Wister rats. The study was conducted using 15 female Wister rats. The female animals were selected for study of 8- 12 weeks old with weight range of within ± 20 % of mean body weight at the time of randomisation. The groups were numbered as group I, II, III, IV and V and dose with 100mg, 250mg, 500mg,1000mg and 2000mg/kg of **SARVANGAVATHA CHOORANAM.** The drug was administered by oral route single time and observed for 14 days. Daily the animals were observed for clinical signs and mortality.

There were no physical and behavioral changes observed in Female Wister rats during 14 days. Mortality was not observed in any treatment groups.

**Conclusion:**

The study shows that **SARVANGAVATHA CHOORANAM** did not produce any toxic effect at dose of 100mg, 250mg, 500mg,1000mg and 2000mg/kg kg to rats. So No-Observed-Adverse-Effect-Level (NOAEL) of **SARVANGAVATHA CHOORANAM** is 2000 mg/kg.

## PHARMACOLOGICAL ANALYSIS

## EFFECT OF SARVANGAVATHA CHOORANAM ON CARRAGEENAN-INDUCED LOCALISED INFLAMMATORY PAIN IN RATS

The study plan was developed based on the guidelines of Vogel[1] and also it has reference to Chao Ma and Jun-Ming Zhang[2] and Walker et al. [3,] Winter CA, Risley EA, Nuss GW. Carrageenin induced edema in hind paw of the rat as an assay for anti-inflammatory drugs. Proc Soc Exp Biol Med. 1962; 111:544–7

The animals were housed in polypropylene cages with stainless steel top grills having facilities for holding pellet food and drinking water in bottle with stainless steel sipper tube. Each cage contained 6 rats. All rats had free access to potable water and standard pelleted laboratory animal diet *ad libitum*. Paddy husk was used as bedding material. The animals were divided into 5 groups (6 rats/group). Localized inflammatory pain was induced in all groups of animals by intraplantar injection of carrageenan (50 µl of 3% suspension). Group 1 received vehicle orally, Group 2 received a standard anti-analgesic drug, Diclofenac sodium (10 mg/kg i.p), whereas groups 3, 4 and 5 received SARVANGAVATHA CHOORANAM 3.024mg, 15.12mg and 75.6mg b.w. The doses of SARVANGAVATHA CHOORANAM were prepared in Honey, where as Diclofenac sodium was dissolved in normal saline.

One day before the experiment, three basal readings of hind paw in each rat were recorded. **Group I** received (0.1ml of 1% carragennan), **Group II** animals received Diclofenac sodium (20 mg/kg po). **Group-III, IV** and **V** animals received the SARVANGAVATHA CHOORANAM 3.024mg, 15.12mg and 75.6mg b.w. After 30 min, the rats were challenged with subcutaneous injection of 0.1 ml of 1% w/v solution of carrageenan into the sub plantar region of left paw. The paw was marked with ink at the level of lateral malleolus and immersed in mercury up to the mark. The paw volume was measured at 0, 1, 2, 3, 4, 5 and 6$^{th}$ hr after carrageenin injection using Digital Plethysmometer. The difference between initial and subsequent reading gave the actual edema volume.

**INTRODUCTION**

Intraplantar injection of carrageenan into the hind paw produces localized inflammation in rats (Urban et al., 2000). An intraplantar injection of carrageenan is widely used to produce a model of localized inflammatory pain.

**Objective**

To study the anti-inflammatory effect of SARVANGAVATHA CHOORANAM in the rat model of Carrageenan-induced localized inflammation.

**Study Guidelines**

This study plan has reference to Vogel (2002), Chao Ma and Jun-Ming Zhang (2011) and Walker et al. (2003).

**MATERIALS AND METHODS**

**Test System**

| | | |
|---|---|---|
| Species | : | Rat |
| Strain | : | Wistar |
| Age | : | 6-8 weeks at the time of dosing |
| Total no. of Rats | : | 30 |
| Sex | : | Male |

**EXPERIMENTAL DESIGN:**

**Group-I:** Served as a negative control (0.1ml of 1% carrageenin)

**Group-II:** Served as standard received Diclofenac sodium (20mg/kg,.po) +

(0.1ml of 1% carrageenin)

**Group-III:** Received SARVANGAVATHA CHOORANAM (3.024mg/kg) +

(0.1ml of 1% carrageenin)

**Group IV:** Received SARVANGAVATHA CHOORANAM (15.12mg/kg) +

(0.1ml of 1% carrageenin)

**Group IV:** Received SARVANGAVATHA CHOORANAM (75.6mg/kg) +

(0.1ml of 1% carrageenin)

**Administration Procedure**

Inflammatory pain was induced in animals belonging to all the Groups by injection of Carrageenan (50 µl of 3% suspension) into the intrplantar region of the right hind paw using a 27-gauge needle attached to a Hamilton syringe under mild ether anaesthesia. The test item **Sarvangavatha Chooranam** and reference drug in Diclofenac sodium were administered orally with carrageenan injection to the

respective groups. Prior to the above administrations, food alone was withdrawn from all the groups overnight (water was provided *ad libitum*).

**Parameters Assessed**

Paw volume was measured post treatment at 0, 1, 2, 3, 4, 5 and $6^{th}$ hr after carrageenin injection using Digital Plethysmometer.

**DOSAGE SCHEDULE**:

The required dose for mice/rat will be calculated by using the standard dose calculation procedure from recommended clinical dose.

**CONVERSION FORMULA**:

Human dose is 1g day

Total clinical dose (a) x conversion factor (b) 0.018 = (c) per 30 gm of mice

1000 mg x 2(a) x 0.018 (b) = 18 (c) /140gms of mice

108/1000x140 = 15.12 mg

Experimental Doses Calculated as per the standard procedures are

| S.No | Groups | Dose /kg, weight | Dose /30 gms. weight | Volume of administration |
|---|---|---|---|---|
| 1 | Vehicle Control | -- | -- | 1 ml |
| 2 | Therapeutic Dose | 15.12 mg | 3.024mg | 1 ml |
| 3 | Middle Dose | 75.6mg | 15.12mg | 1 ml |
| 4 | High Dose | 378mg | 75.6mg | 1 ml |

**TABLE: EFFECT OF SARVANGAVATHA CHOORANAM ON CARRAGEENIN-INDUCED PAW EDEMA IN RATS (BODY WEIGHT)**

| Group | Only Carrageenin | Carrageenin + Standard | Carrageenin+ S C-LD | Carrageenin + S C MD | Carrageenin + S C- HD |
|---|---|---|---|---|---|
| Initial Body Weight | 123.167±0.909823 | 129.167±1.04616 | 136.833±0.833333 | 131.333±1.33333 | 140±1.39044 |

Values are expressed as the mean ± S.D. Statistical significance (p) calculated by one way ANOVA followed by dunnett's. ns- not significant $^{**}P< 0.05$ calculated by comparing treated group with control group

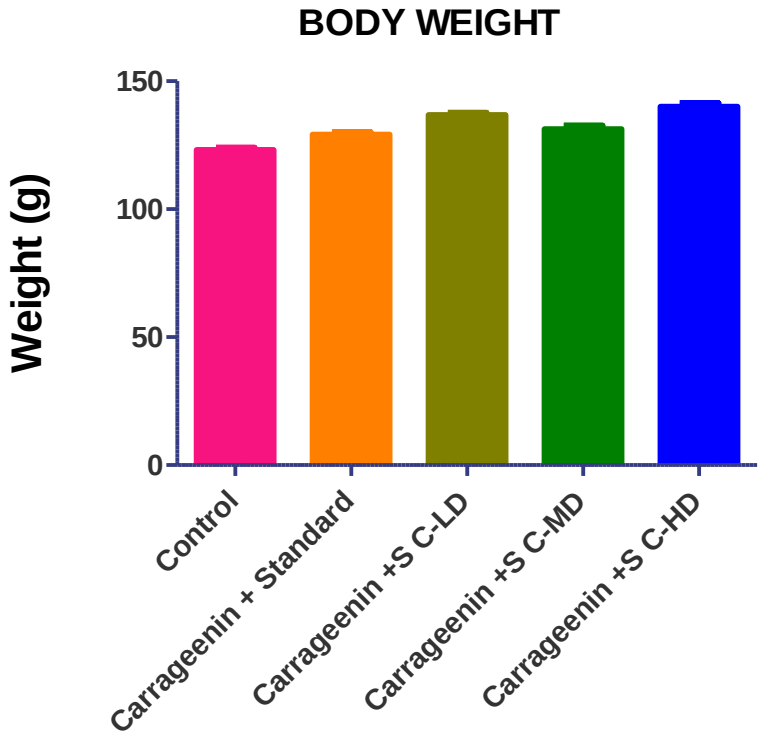
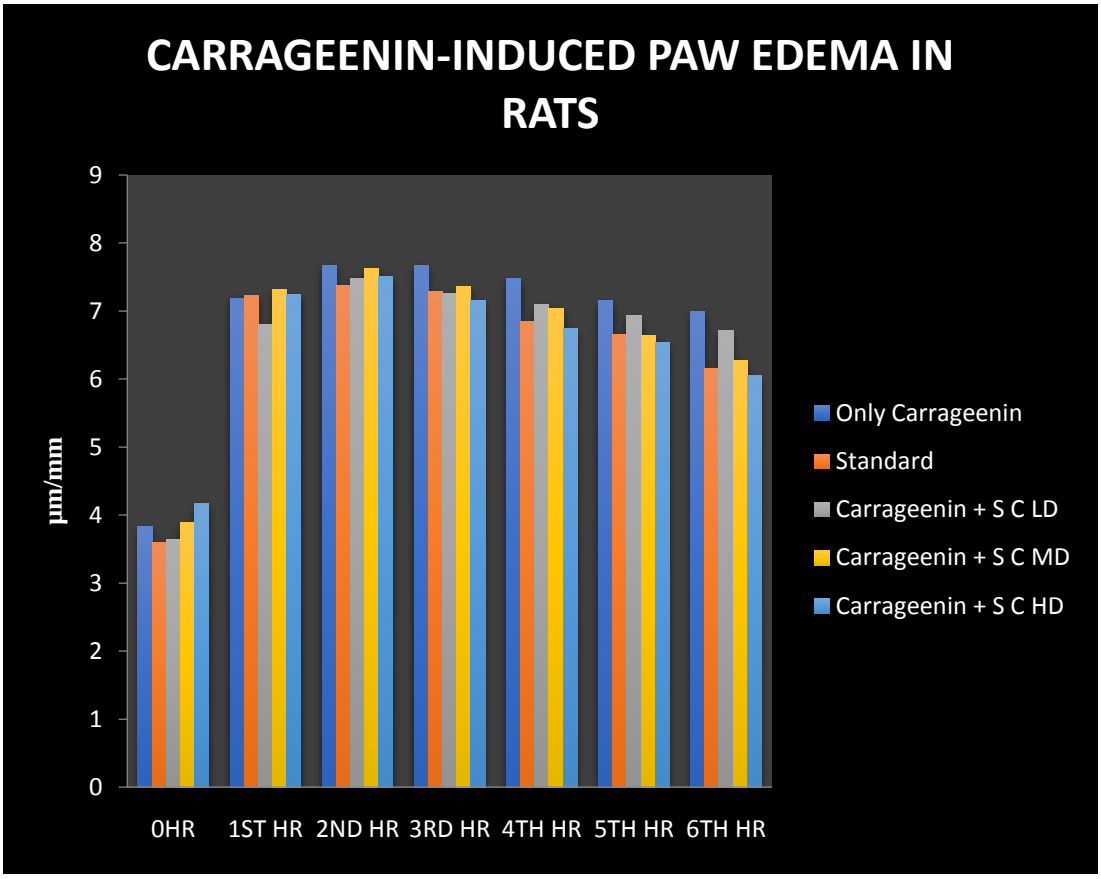

BODY WEIGHT
Weight (g)
150
100
50
0
Control
Carrageenin + Standard
Carrageenin +S C-LD
Carrageenin +S C-MD
Carrageenin +S C-HD

**TABLE: EFFECT OF SARVANGAVATHA CHOORANAM ON CARRAGEENIN-INDUCED PAW EDEMA IN RATS**

| Group | Mean paw volume before carrageenan injection | Paw Volume after induction with carrageenin Increase in paw volume (Mm) after carrageenan injection (mean ± SEM)/Percent inhibition of edema | | | | | |
|---|---|---|---|---|---|---|---|
| | 0 min | 1h | 2h | 3h | 4h | 5h | 6h |
| Only carrageenan | 3.83± 0.189367 | 7.19667± 0.131901 | 7.67667± 0.148272 | 7.67167 ± 0.0617747 | 7.485± 0.067614 | 7.15333 ± 0.0832133 | 7.00833± 0.0838418 |
| carrageenan + Standard | 3.60833± 0.125391 | 7.23± 0.152818 | 7.37± 0.127828 | 7.28833 ± 0.0352531* | 6.85167± 0.141243** | 6.665± 0.142144* | 6.15167± 0.162448*** |
| carrageenan + SC LD | 3.64± 0.116304 | 6.80333± 0.0956963 | 7.48167± 0.100745 | 7.26667 ± 0.0644291* | 7.09167± 0.050492$^{ns}$ | 6.93667 ± 0.0614094$^{ns}$ | 6.71333± 0.052578$^{ns}$ |
| carrageenan + SC MD | 3.89667± 0.169188 | 7.31667± 0.10388 | 7.62167± 0.142978 | 7.365± 0.138124$^{ns}$ | 7.04333± 0.124971* | 6.645± 0.111228** | 6.285± 0.126221** |
| carrageenan + SC HD | 4.17333± 0.166907 | 7.25167± 0.104384 | 7.51667± 0.124944 | 7.16833 ± 0.104385** | 6.75167± 0.163022*** | 6.54667 ± 0.120766** | 6.05± 0.180924*** |

Values are expressed as the mean ± S.D. Statistical significance (p) calculated by one way ANOVA followed by dunnett's. ns- not significant $^{**}P< 0.05$ calculated by comparing treated group with control group.

| Group | Paw Volume after induction with carrageenin<br><br>Increase in paw volume (Mm) after carrageenan injection (mean ± SEM)/Percent inhibition of edema | | | |
|---|---|---|---|---|
| | **Initial Paw volume(mm)** | **Final Paw volume(mm)** | **Difference** | **Percentage protection (%)** |
| Control | 3.88± 0.19836 | 3.88± 0.19836 | -------- | ------ |
| Only carrageenan | 3.83± 0.189367 | 7.00833± 0.0838418 | 3.17 | 82.76 % |
| carrageenan + Standard | 3.60833± 0.125391 | 6.15167± 0.162448*** | 2.55 | 70.83 % |
| carrageenan + S C LD | 3.64± 0.116304 | 6.71333± $0.052578^{ns}$ | 3.07 | 84.34 % |
| carrageenan + S C MD | 3.89667± 0.169188 | 6.285± 0.126221** | 2.39 | 61.43 % |
| carrageenan + S C HD | 4.17333± 0.166907 | 6.05± 0.180924*** | 1.88 | 45.08 % |


CARRAGEENIN-INDUCED PAW EDEMA IN RATS
µm/mm
9
8
7
6
5
4
3
2
1
0
0HR
1ST HR
2ND HR
3RD HR
4TH HR
5TH HR
6TH HR
Only Carrageenin
Standard
Carrageenin + S C LD
Carrageenin + S C MD
Carrageenin + S C HD

**EFFECT OF SARVANGAVATHA CHOORANAM ON CARRAGEENIN-INDUCED PAW EDEMA IN RATS**

GROUP – I-CONTROL

GROUP – II ONLY CARRAGEENIN

GROUP – III- CARRAGEENIN+ STD

GROUP –IV- CARRAGEENIN+ L.D

GROUP – V- CARRAGEENIN+ M.D

GROUP – VI- CARRAGEENIN+ H.D

## CONCLUSION

To conclude, the **Sarvangavatha Chooranam** were evidenced as a siddha drug for the treatment of pain and inflammation and it is found that it useful for inflammatory disorders.

## EVALUATION OF ANALGESIC POTENCY OF SARVANGAVATHA CHOORANAM BY HOT PLATE METHOD

**AIM:** To evaluate the analgesic activity of Sarvangavatha Chooranam by using Hot Plate analgesiometer

**METHOD:** Thermal

**ANIMALS:** Healthy Swiss albino rats of either sex weighing 20-25g were used in this study. All the animals were obtained from Animal house of the KMCH College of Pharmacy, Coimbatore. The animals were housed comfortably in a group of six in a single clean plastic cage with a metal frame lid on its top. They were housed under standard environmental conditions of temperature (24±1°C) and relative humidity of 30-70 %. A 12:12 h light dark cycle was followed. All animals had free access to water and standard pelletized laboratory animal diet ad libitum. All the experimental procedures and protocols used in this study were reviewed and approved via the Approval No. ---------- by the Institutional Animal Ethical Committee (IAEC) of KMCH College of Pharmacy, Coimbatore (685/PO/Re/S/2002/CPSCEA Dated 21st August 2002 constituted in accordance with the guidelines of the CPCSEA, Government of India.

**APPARATUS:** Oral feeding needle, thermostatically controlled Hot Plate

**DRUG & SOLUTIONS:**

**1.** Pentazocine (10mg/Kg, I.P)

2. Normal Saline 2 Ml/Kg, Orally

3. SARVANGAVATHA CHOORANAM 1g BD

**BACKGROUND INFORMATION:**

Eddy's Hot Plate: Animal is placed on hot plate and time for jumping from plate is noted before and after administration of drug

**PRINCIPLE:**

Record the response of an animal to a painful stimulus before and after administration of analgesics. Heat is used as a source of pain (Thermal stimulus) as the paws of rats are sensitive to heat at temperatures of 55-56$^0$C.

**PURPOSE:** The paws of mice are very sensitive to heat at temperature. So the responses are jumping, withdrawal of paws and licking of the paws. The time until this response occurs is prolonged after administration of centrally acting analgesics.

**PROCEDURE:**

Eddy's hot plate method: Albino mice were placed on a heated copper plate set at 55 ± 1°C and the time taken for either to sit on its hind paw and blow its forepaw paw was taken as the reaction time or latency time. The test drug SARVANGAVATHA CHOORANAM was administered orally 1 h before, and the standard drug Pentazocine (10mg/Kg, I.P) was given intraperitoneally ½ h prior to the experiment. The cut-off period was taken at 15 s. The latency time was recorded at 0, 60 min of administration of standard and test drug.1

1. Turner RA. Screening methods in pharmacology. In: Turner, R., Hebborn, P. (eds.). Academic press, New York. 1965; 100.

**DOSAGE SCHEDULE**:

The required dose for mice/rat will be calculated by using the standard dose calculation procedure from recommended clinical dose.

**CONVERSION FORMULA**:

Human dose is 1g day

Total clinical dose (a) x conversion factor (b) 0.018 = (c) per 30 gm of mice

1000 mg x 2(a) x 0.018 (b) = 18 (c) /30gms of mice

108/1000x30 = 0.54 mg

Experimental Doses Calculated as per the standard procedures are

| **S.No** | **Groups** | **Dose /kg, weight** | **Dose /30 gms. weight** | **Volume of administration** |
|---|---|---|---|---|
| 1 | Vehicle Control | -- | -- | 0.5 ml |
| 2 | Therapeutic Dose | 0.54 mg | 0.108mg | 0.5 ml |
| 3 | Middle Dose | 2.7mg | 0.44 mg | 0.5 ml |
| 4 | High Dose | 13.5mg | 2.7mg | 0.5 ml |

**EXPERIMENTAL PROCEUDRE:**

**GROUP 1 – CONTROL (Honey)**

**GROUP 2 – PENTAZOCINE (10MG/KG, I.P)**

**GROUP 3 -- SARVANGAVATHA CHOORANAM (1G BD) (0.108mg /kg (po)**

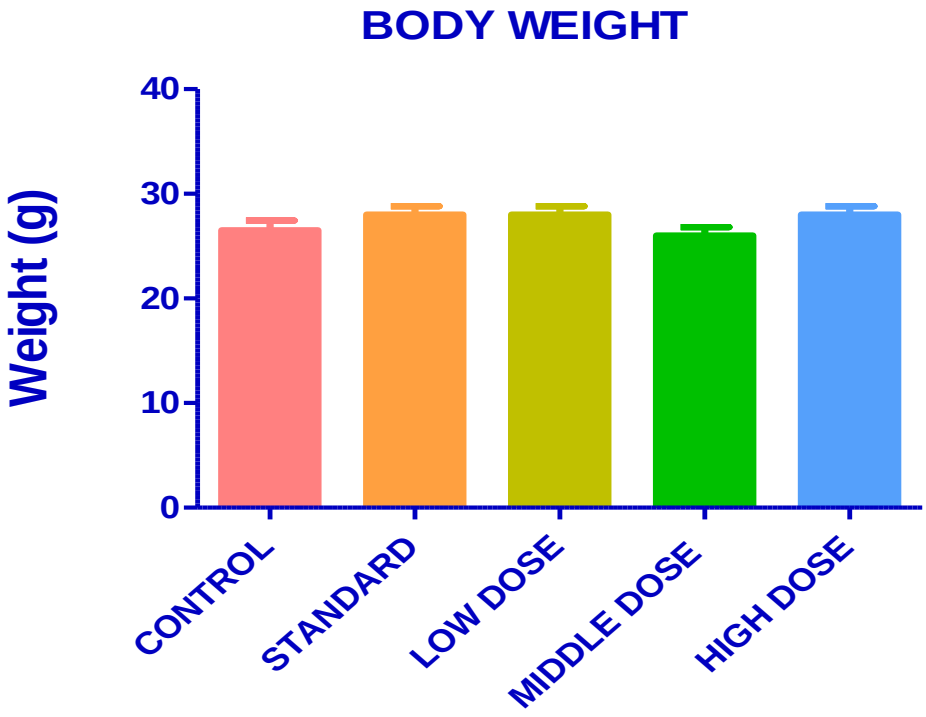
**GROUP 4 – SARVANGAVATHA CHOORANAM (1G BD) (0.44 mg mg /kg (po)**

**GROUP 5 -- SARVANGAVATHA CHOORANAM (1G BD) (2.7mg mg /kg (po)**

**BODY WEIGHT :-**

| GROUP | CONTROL | STANDARD | S C + LOW DOSE | S C + MIDDLE DOSE | S C + HIGH DOSE |
|---|---|---|---|---|---|
| BODY WEIGHT (mg/kg) | 26.5±0.957427 | 28±0.816497 | 28±0.816497 | 26±0.816497 | 28±0.816497 |

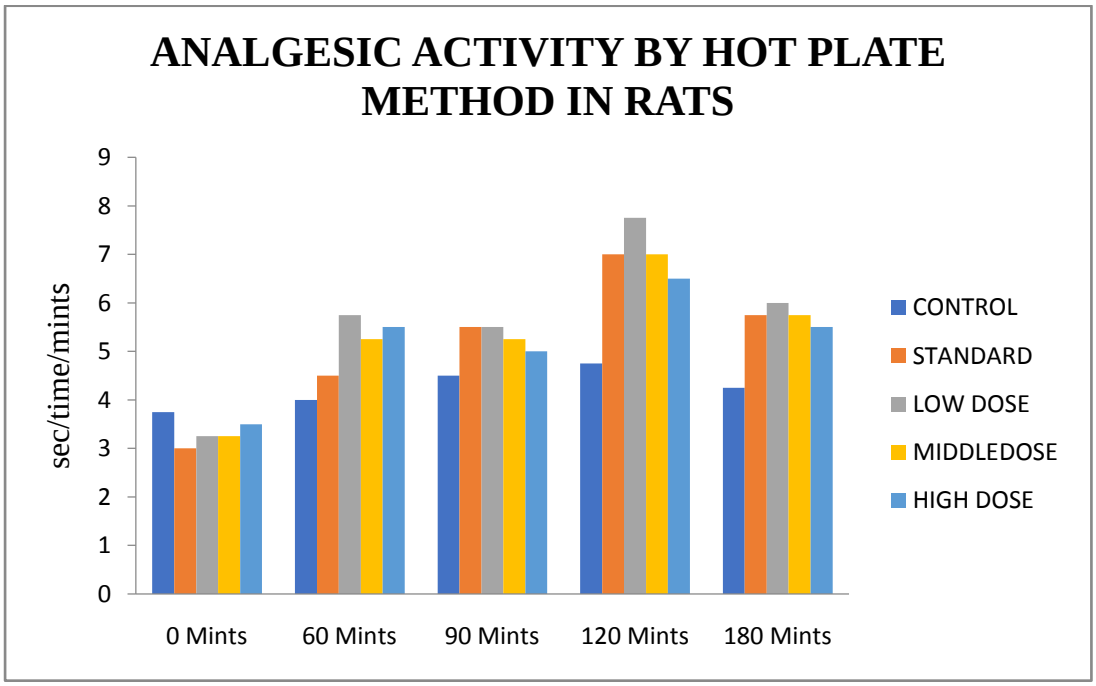
Values are expressed as the mean ± S.D; Statistical significance (p)calculated by one way ANOVA followed by dunnett's ns–non significante , $^{***}P< 0.001$, $^{**}P < 0.01$, $^{*}P < 0.05$ calculated by comparing treated group with CONTROL group.


BODY WEIGHT
Weight (g)
40
30
20
10
0
CONTROL
STANDARD
LOW DOSE
MIDDLE DOSE
HIGH DOSE

**ANALGESIC ACTIVITYOF SARVANGAVATHA CHOORANAM BY HOT PLATE METHOD IN RATS**

| GROUP | Reaction time in seconds at time (minutes) (mean ± sem) (mean ± sem) | | | | |
|---|---|---|---|---|---|
| | O mints | 60 mints | 90 mints | 120 mints | 180 mints |
| CONTROL | 3.75±0.4787 | 4±0.70711 | 4.5±0.6455 | 4.75±0.4787 | 4.25±0.9465 |
| STANDARD | 3±0.4082 | 4.5±0.6455 | 5.5±0.6455 | 7±0.4082 | 5.75±0.4787 |
| S C + LOW DOSE | 3.25±0.4787 | 5.75±0.47871 | 5.5±0.6455 | 7.75±0.8539 | 6±0.4082 |
| S C + MIDDLE DOSE | 3.25±0.4787 | 5.25±0.85391 | 5.25±0.75 | 7±0.7071 | 5.75±0.75 |
| S C + HIGH DOSE | 3.5±0.2887 | 5.5±0.28868 | 5±1.08 | 6.5±0.866 | 5.5±0.6455 |

Values are expressed as the mean ± S.D; Statistical significance (p)calculated by one way ANOVA followed by dunnett's ns– non significante , $^{***}P< 0.001$, $^{**}P < 0.01$, $^{*}P < 0.05$ calculated by comparing treated group with CONTROL group.


ANALGESIC ACTIVITY BY HOT PLATE METHOD IN RATS
sec/time/mints
9
8
7
6
5
4
3
2
1
0
0 Mints
60 Mints
90 Mints
120 Mints
180 Mints
CONTROL
STANDARD
LOW DOSE
MIDDLEDOSE
HIGH DOSE

## ASSESSMENT FORMS

| | | |
|---|---|---|
| **FORM I** | **:** | Screening form |
| **FORM II** | **:** | Consent form |
| **FORM III** | : | History proforma on enrollment |
| **FORM IV** | **:** | Clinical Assesment on enrollment and on visit |
| **FORM V** | : | Laboratory Investigation form |
| **FORM VI** | : | Drug compliance form |
| **FORM VII** | : | Adverse drug reaction form |
| **FORM VII** | : | Withdrawal form |

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**FORM-I**

**(SCREENING AND SELECTION PROFORMA)**

**1. OPD/IPD No. ——————— 2. Date: ——————— 3. SI. No. ———————**

**4. Name_____ 5. Age: _____ 6. Gender: _____ 7. Phone no: _____**

**INCLUSION CRITERIA:**

- Age : between 20- 70 years
- Sex : Both male and female
- Joints pain : more than 5 joints
- Swelling
- Stiffness
- Restricted movements in affected joint.
- Willing for admission and study in IPD for 30-40 days or willing to attend OPD

**EXCLUSION CRITERIA:**

- Rheumatoid arthritis
- Other systemic illness
- Gout
- Malignancy
- Pregnancy women and Lactating mother
- Tuberculosis

**WITHDRAWAL CRITERIA:**

1. Intolerance to the drug and development of adverse reactions during drug trial.

2. Poor patient compliance and defaulters.
3. Patient turned unwilling to continue in the course of clinical study.
4. Occurrence of any serious illness during the course of study.

DATE :

STATION : Signature of the Investigator

**SIGNATURE OF THE GUIDE/ HOD**

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FORM-II

**CONSENT FORM**

**Certificate by Investigator**

I certify that I have disclosed all details about the study in the terms readily understood by the patient.

Date: …….  Signature of the

Signature of the Investigator: ……  Guide/HOD: …….

Name: ……  Name: ……

**Consent by Patient**

I have been informed to my satisfaction, by the attending physician, the purpose of the clinical trial, and the nature of drug treatment and follow-up including the laboratory investigations to be performed to monitor and safeguard my body functions.

I am aware of my right to withdraw from the trial at any time during the course of the trial without having to give the reasons for doing so.

I, exercising my free power of choice, hereby give my consent to be included as a clinical trial of **SARVANGAVATHA CHOORANAM** [INTERNAL] AND **MUKKUTU YENNAI** [EXTERNAL] WITH **OTTRADAM** [EXTERNAL THERAPY] IN **SANTHUVATHAM** [POLYARTHRITIS].

Date: …….  Signature: ……

Name: …….

Date: …….  Signature of Witness: …….

Name……

Relationship: …….

**அரசினர் சித்த மருத்துவக் கல்லூரி மற்றும் மருத்துவமனை**

**பாளையங்கோட்டை**

**பட்டமேற்படிப்பு சிறப்பு மருத்துவத்துறை**

**‘சர்வாங்கவாத சூரணம்” மற்றும் ‘முக்கூட்டு எண்ணெய்” இவற்றின் பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்வு ஒப்புதல் படிவம் ஆய்வாளரால் சான்றளிக்கப்பட்டது.**

நான் இந்த ஆய்வைக் குறித்த அனைத்து விபரங்களையும் நோயாளிக்கு புரியும் வகையில் எடுத்துரைத்தேன் என உறுதியளிக்கிறேன்.

தேதி : கையொப்பம்:

இடம் : பெயர்:

**நோயாளியின் ஒப்புதல்**

என்னிடம் இந்த மருத்துவ ஆய்வின் காரணத்தையும் மருந்தின் தன்மை மற்றும் மருத்துவ வழிமுறையைப் பற்றியும் தொடர்ந்து எனது உடல் இயக்கத்தை கண்காணிக்கவும், அதனைப் பாதுகாக்கவும் பயன்படும் மருத்துவ ஆய்வுக்கூட பரிசோதனைகள் பற்றியும் திருப்தி அளிக்கும் வகையில் ஆய்வு மருத்துவரால் விளக்கிக் கூறப்பட்டது.

நான் இந்த மருத்துவ ஆய்வின் போது காரணம் எதுவும் கூறாமல் எப்பொழுது வேண்டுமானாலும் இந்த ஆய்விலிருந்து என்னை விடுவித்துக் கொள்ளும் உரிமையை தெரிந்திருக்கின்றேன்.

நான் என்னுடைய சுதந்திரமாகத் தேர்வு செய்யும் உரிமையைக் கொண்டு **சந்து வாதம்** என்னும் நோய்க்கான **சர்வாங்கவாத சூரணம்** மற்றும் **முக்கூட்டு எண்ணெய்** ஆகியவற்றின் பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கு என்னை உட்படுத்த ஒப்புதல் அளிக்கிறேன்.

தேதி : கையொப்பம்:

இடம் : பெயர் :

சாட்சிக்காரர் கையொப்பம்:

பெயர் :

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**FORM III**

**HISTORY PROFORMA ON ENROLLMENT**

1. Serial No of the case: _____ 2. OPD/IPD No_____

3. Name: _____ 4. Gender: ☐

5. Age (years): _____ DOB ☐☐ ☐☐ ☐☐☐☐

Date Month Year

6. Address: ----------

---

---

7. A. Occupation: ---------- B. Income ----------

8. Educational Status: A) Illiterate ☐ B) Literate ☐

9. Height: ---------- cm 10. Weight: ----------kg

11. Complaints and Duration:

12. Past History

Hypertension _____

Diabetes mellitus _____

Asthma _____

PT _____

Other _____

13. HABITS

A) Smoking: 1. Yes ☐ duration _____ years: Number - _____ 2. No ☐

B) Alcoholism:1. Yes ☐ duration _____ years: Quantity- ____ ml 2. No ☐

C) Tobacco chewing: 1. Yes ☐ duration _____ years 2.No ☐

D) Betel chewing : 1. Yes ☐ duration _____ years 2.No ☐

14. Dietary style: A. Pure vegetaria☐ B. Non-vegetar☐ C. Mixed☐ diet

15. Drug history: Had the patient been treated before with allopathy drug?

A) Yes ☐ 2) No ☐

16 Marital status **:** 1.Married ☐ 2.Unmarried ☐

17. Family history :

Whether this problem runs in family? 1. Yes ☐ 2.No ☐

(If yes, mention the relationship)

18. Bowel habits & micturition: Normal ☐ Abnormal ☐

(Details of an abnormality)

19. Psychological state: Normal ☐ Anxiety ☐ Depression ☐

**Signature of the Investigator** **Signature of the Guide/HOD**

**GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL,**

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**FORM IV**

**CLINICAL ASSESSMENT ON ENROLLMENT AND ON VISITS**

1. S.No: _____ 2. OPD/IPD No : _____

3. Name**:** _____ 4. Gender: _____

5. Date of assessment: _____ /_____

**SIDDHA SYSTEM OF EXAMINATION**

**I. ENVAGAI THERVU: [EIGHT-FOLD EXAMINATION]**

Naadi: [pulse perception]

Naa:[tongue]

Niram: [complexion]

Mozhi: [voice]

Vizhi: [eyes]

Malam: [bowel habits / stools]

Moothiram:

Sparisam: [palpatory perception]

**2. NEER KURI:**

Niram:

Edai:

Nurai:

Enjal:

Manam:

**3. NEI KURI**

**4. THEGI: [ TYPE OF BODY CONSTITUTION]**

**5.NILAM: [ LAND WHERE PATIENT LIVED MOST]**

Kurinji ☐ (Hilly terrain) Mullai ☐ (Forest range) Marutham ☐ (Plains) Neithal ☐ (Coastal belt) Palai ☐ (Arid regions)

**6. KAALAM:**

| | | | |
|---|---|---|---|
| Kaarkalam | - ☐ | Pinpanikalam | - ☐ |
| Koothirkalam | - ☐ | Ilavenil | - ☐ |
| Munpanikalam | - ☐ | Muthuvenil | - ☐ |

**7. GUNAM:**

Sathuvam - ☐ Rasatham - ☐ Thamasam - ☐

**8.IMPORIGAL (SENSORY ORGANS)**

Mei

Vai

Kan

Mooku

Sevi

**9. KANMENDRIYAM ( MOTOR ORGANS)**

Kai

Kaal

Vaai

Eruvai

Karuvai

**10.KOSANGAL(Sheath)**

| | **0th Day** | **49th Day** |
|---|---|---|
| Annamaya Kosam | | |
| Pranamaya kosam | | |
| Manomaya kosam | | |
| Vignanamaya kosam | | |
| Ananthamaya kosam | | |

**11. MUKKUTRAM: [AFFECTION OF THREE HUMORS]**

**A) VATHAM:**

Praanan

Abaanan

Viyaanan

Udhaanan

Samanan

Naagan

Koorman

Kirugaran

Dhevathathan

Dhananjeyan

**B) PITHAM:**

Analpitham

Ranjagam

Sathagam

Prasagam

Aalosagam

**C) KABHAM:**

Avalambagam

Kilethagam

Pothagam

Tharpagam

Santhigam

**12.UDAL THATHUKAL [SEVEN DHATHUS]:**

Saaram

Seneer

Oon

Koluppu

Enbu

Moolai

Sukilam/Suronitham

**13.GENERAL EXAMINATION**

| | |
|---|---|
| Consciousness | : |
| Position | : |
| Attitude | : |
| Pulse Rate | : |
| Heart Rate | : |
| Temperature | : |
| Respiratory Rate | : |
| Blood Pressure | : |
| Anaemia | : |
| Jaundice | : |
| Cyanosis | : |
| Clubbing | : |
| Oedema | : |
| Significant Lymph adenopathy | : |

**14.SYSTEMIC EXAMINATION:**

Central Nervous System

Cardio vascular system

Respiratory system

Gastro intestinal system

Genito urinary system

**OVERALL ASSESSMENT CRITERIA OF THE STUDY**

| **S.NO** | **SIGNS AND SYMPTOMS** | **BEORE TREATMENT** | **ATER TREATMENT** |
|---|---|---|---|
| 1 | PAIN | | |
| 2 | SWELLING | | |
| 3 | REDNESS | | |
| 4 | TENDERNESS | | |
| 5 | JOINT STINESS | | |
| 6 | JOINT DEORMITY | | |
| 7 | LOSS O JOINT RANGE OF MOTION | | |

**Signature of the Investigator : Signature of the Guide / HOD**

**GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL,**

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**FORM V**

**LABORATORY INVESTIGATION FORM**

S.NO: OP/IP NO:

NAME: AGE: SEX:

**I.BLOOD**

| | | Before Treatment | After Treatment |
|---|---|---|---|
| 1 | TC (cells/mm) | | |
| 2 | DC | | |
| 3 | ESR (mm) | | |
| 4 | Haemoglobin | | |
| 5 | Blood glucose | | |
| 6 | Blood urea / creatinine | | |
| 7 | Serum cholesterol | | |

**II. URINE**

| | | Before Treatment | After Treatment |
|---|---|---|---|
| 1 | Albumin | | |
| 2 | Sugar | | |
| 3 | Deposit | | |

**SPECIAL INVESTIGATION:**

RA FACTOR :

CRP :

Date :

Station :

**Signature of the Investigator :**

**Signature of the Guide /HOD**

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**FORM VI**

**(DRUG COMPLIANCE FORM)**

OPD/ IPD No: _____ DOA: _____

Name: _____ Age/ Sex: _____ S. No: _____

Name of The Drug : **SARVANGAVATHA CHOORANAM**

| S.NO | DATE | MORNING | SIGN |
|---|---|---|---|
| **1.** | | | |
| **2.** | | | |
| **3.** | | | |
| **4.** | | | |
| **5.** | | | |
| **6.** | | | |
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| **18.** | | | |
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| **36.** | | | |
| **37.** | | | |
| **38.** | | | |
| **39.** | | | |
| **40.** | | | |
| **41.** | | | |

**DATE:**

**SIGNATURE OF THE INVESTIGATOR**

**SIGNATURE OF THE GUIDE/HOD**

**GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL**

**PALAYAMKOTTAI, TIRUNELVELI DISTRICT.**

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**FORM VII**

**ADVERSE DRUG REACTION FORM**

Name: _____ OPD/ IPD No: _____

Age: _____ Gender: _____

Date of trial commencement: _____

Date of withdrawal from trial: _____

Description of adverse reaction:

_____

_____

Date:

Station:

**SIGNATURE OF INVESTIGATOR** **SIGNATURE OF THE GUIDE / HOD**

**GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL,**

**PALAYAMKOTTAI, TIRUNELVELI DISTRICT.**

**DEPARTMENT OF SIRAPPU MARUTHUVAM**

AN OPEN NON- RANDOMIZED PHASE II CLINICAL TRIAL TO EVALUATE THE THERAPEUTIC EFFICACY OF **SARVANGAVATHA CHOORANAM** [INTERNAL] AND **MUKKUTU YENNAI** [EXTERNAL] WITH **OTTRADAM** [EXTERNAL THERAPY] IN **SANTHUVATHAM** [POLYARTHRITIS].

**FORM VIII**

**WITHDRAWAL FORM**

Name: _____ OPD/ IPD number: _____

Age : _____ Gender : _____

Date of trial commencement: _____

Date of withdrawal from trial: _____

**Reasons for withdrawal:**

| | YES | NO |
|---|---|---|
| • Long absence in without reporting | ☐ | ☐ |
| • Irregular treatment | ☐ | ☐ |
| • Shift of locality | ☐ | ☐ |
| • Increase in severity of symptoms | ☐ | ☐ |
| • Development of severe adverse drug reactions | ☐ | ☐ |

Date:

Station:

**SIGNATURE OF INVESTIGATOR**

**SIGNATURE OF GUIDE/HOD**

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